The Builder.

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New Chapters in Greek History.

WE have been asked more than once, "Is there any readable book that gives the outcome of all these recent excavations?" and up to the present time we have had always to reply in the negative and dismiss the dejected inquirer with references to Jahrbuchs and Bulletins which we know perfectly well he has neither time nor inclination to consult. Professor Gardner has, we are sure, supplied a very real need in the work now issued.* "My endeavour," he says in the preface, "has been to set forth briefly and, if possible, in a way tending to interest all phil-Hellenes, the gains which the excavations of the last twenty years have brought us in regard to our knowledge of Greek history, using the word history in the widest sense, as covering not only political events but all sides of the activity of a nation. I have written," he goes on to say, "not for archæologists, but for the ordinary educated reader, for those who are acquainted with the literature, or the history, or the art of Greece, and who wish to fill up the lacunæ, or to learn in what directions the spade is increasing our acquaintance with ancient Hellas."

The book is in part a reprint. A considerable portion of chapter iv., the Palace at Tiryns; vi., Ancient Cyprus; vii., Naucratis and the Greeks in Egypt; viii., the excavations in the Athenian Acropolis; ix., Olympia and its Festival; xv., the successors of Alexander, have already appeared in the *Quarterly Review*; chapter ix., on reliefs and inscriptions of Athenian Tombs, in the *Contemporary;* xi., on Spartan Tombs and the Cultus of the Dead, in the *Fortnightly;* parts of i., on the Verification of Ancient History and on Recent Discoveries and the Homeric poem, in *Macmillan's*. On the other hand, the chapters on Phrygia and Troas, Mycenæ and the islands, Epidaurus and Ancient Medicine, Eleusis and the Mysteries, and Dodona and the Oracles, are mainly new. With the exception of the last chapter on the Successes of Alexander all the published articles are carefully revised up to date.

No one but a thoroughly furnished archæologist could travel with comfort over a field so wide as the mere enumeration of the titles of the chapters indicates; no mind but one exceedingly wary and well-balanced could keep a safe foothold among pitfalls so precarious. Professor Gardner is all these things, and, most of all, he is a man of peace, contending steadfastly enough for the truth, but with little instinctive love of conflict. Naukratis, Mycenæ, Troy,—their very names are as the trumpet to the archæological war-horse; in Professor Gardner they stir the steady glow of a scholar's enthusiasm, but no heat and fury of the battle. How rigidly, too, he can resist what must have been temptation is shown by the significant fact that there is no chapter on that red rag, the Greek theatre.

We naturally turn first to see what Professor Gardner has to say on the question of supreme interest for the moment,—the relation of the Schliemann discoveries to the Homeric poems. The chapters that precede we need not dwell on in detail; they present admirable summaries of the explorations of Professor Ramsay in Asia Minor, and of the details of the Schliemann excavations. The account of these last was, in the main, written before the appearance of the English edition of Dr. Schuchardt's book. It is interesting to compare Professor Gardner's view with that presented by Dr. Leaf in his admirable preface to the English version. The issue,—for issue there is,—stands thus:—"Mr. Monro and Mr. Leaf are both disposed to think that most of the Homeric poems were composed by Achæans before the Dorian conquest, and taken to Asia by the colonists." "This," writes Professor Gardner, "I cannot concede; for it seems to me certain that the poets who wrote them were speaking of a past which lay some distance behind them." To put it a little more fully, Dr. Leaf holds that there is, at all events, a possibility that the oldest parts of the "Iliad" at least may be actual survivals in their present form from Achæan and pre-Dorian days. "This view, setting aside philological arguments as a working hypothesis, certainly relieves the archæologist of grave difficulties; the poems are then allowed to depict actually and as contemporaries what they pretend to depict,—*i.e.*, the Achæan age. We understand at once how they can present with such vivid life a state of manners and customs which must have been utterly unknown to the Ionians of the coast of Asia Minor." These Ionians were eager-traders, democratic, full of enterprise, ever intent on widening their horizon, the very antipodes of the Homeric Achæans, ancient families, aristocratic, patriarchal, conservative, stay-at-home. That an Ionian could depict such an age in life-like fashion is an assumption, Dr. Leaf holds, that strains all probability; for it not only assumes a trained historic imagination, but involves actual archæological study such as is absolutely foreign to the genius of a young and rising nation. We confess we are with Dr. Leaf. The whole of Professor Gardner's argument for the wide chronological gap that separates the writer of the Homeric poem from the age he depicts is vitiated by this assumption of a certain archæological consciousness in that writer or writer's mind. Anachronisms, Professor Gardner writes, "were kept out of their epic poems on the same principle on which a writer of pastoral idyls in our day would avoid the mention of the telegraph or telephone." We must register our distinct conviction on the opposite side, as we believe, with Dr. Leaf, that the writers describe in reality the age they profess to describe,—an age as regards the earliest parts of the poem contemporary with themselves, depicted by no effort of historic imagination; and, further, that this age is the age of the builders of the beehive tombs. On this supposition the Homeric poems are brought into close and actual contact with the Mycenæ excavations, — a contact far closer than Professor Gardner will allow. So temperate, however, is his tone here, as always, that a misconception we believe to be somewhat fundamental scarcely vitiates at all his interesting account of the facts.

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*"New Chapters in Greek History. Historical results of recent excavations in Greece and Asia Minor." By Percy Gardner, M.A., Litt.D., Lincoln and Merton Professor of Classical Archæology and Art, Oxford; late Disney Professor of Archæology, Cambridge, with illustrations. London: John Murray, Albemarle-street. 1892.

The chapter on ancient Cyprus is a record of shame for England. We need not tell again the melancholy tale of the Cesnola excavations; perhaps the only civilised Government which would have tolerated such proceedings is the English; we wilfully tore up a chapter in ancient history committed to our charge, and civilised Europe is not likely to let us forget it. The Cyprus Exploration Fund is doing what it can with meagre resources to wipe out by private effort the public blot, but large sums are needed, and scarcely likely to be forthcoming before the excavations can be in an adequate way completed. Something, however, has been done. Three classes of tombs—Primitive, Phœnician, and Græco-Roman have been cleared out; the plan of the Temple of Aphrodite at Paphos has shown us how widely different was an Oriental sanctuary from a Greek temple; and a number of richly-painted terra-cotta statues have taught us something of the art of a people who thought more of dress than its wearer,—an art so languid that it imitated the style of any one of the more living arts of the nations round.

The story of Naukratis is told with special fulness and vivacity. The excavations there owed much to the zeal and scholarship of Mr. Ernest Gardner, and Professor Gardner's interest is rightly and naturally personal as well as professional. At Naukratis, we English have redeemed something of the prestige that we lost at Cyprus, and we have discovered most where we looked for least. Time, which has destroyed all that was splendid in the temples of Naukratis,—the marble pillars, the cultus statues, the dedicated vessels of gold and silver,—has made some amends by preserving to us their rubbish-heaps. As the temples became too full of votive offerings, dedicated and usually inscribed by the Greek traveller who had reached Egypt in safety, the temple officers would dig a trench, break up the anathemata for economy of space, and bury those they judged superfluous. From these trenches thousands of fragments of vases (many now in the British Museum), painted and inscribed, have been rescued. Before visiting these treasures, or referring to the official report and its plates, every reader will do well to run through Professor Gardner's interesting historical and topographical sketch, he will save himself much wandering in the bye-paths of ancient history, and he could not take a safer guide.

The chapter on the excavations of the Acropolis is largely in substance a review of that very Dörpfeldian book, "Mythology and Monuments of Ancient Athens." To this book the most generous justice is done, though Professor Gardner himself refuses to give anything like exclusive attention to the voice of the charmer. He is not the least convinced by Dr. Dörpfeld's arguments as to the preservation down to the times of Pausanias of the "old Athene Temple." Still less does he hold with Miss Harrison that when Pausanias speaks of the Temple of Athene Polias, and the treasures it contained, he intends not, as all writers have hitherto supposed, a part of the complex building called the Erechtheion, but this most ancient Temple of Athens." He goes on to say, "at the same time she is obliged to allow that the very archaic wooden figure of Athene, which the people of Athens guarded as their most important and venerable treasure, was preserved under the roof of the Erechtheion thus acknowledging in her theory a weakness which if not fatal is at least serious." The fact is, we believe, that Miss Harrison considers the supposed Athene was originally no Athene at all, but an old stock image belonging to a cult that existed long before Athene came to the Acropolis, an image, namely, of *Gaia*-Pandrosos, the early form of the goddess known as Demeter, and worshipped at Athens as at Thebes in primitive Pelasgian days, just such an image as that of which Tertullian pertinently remarks "the Rarian Ceres which is a formless effigy, and consists of an unhewn and shapeless stock." Such an image would rightly be housed in the old museum of cults, the Erechtheion.

The remaining chapters may be dealt with more briefly. In the account of Olympia so much space is given to the Athletic contests that its careful reading by large numbers of educated Englishmen to whom the bulk of archæology is unsympathetic may be taken as assured. Professor Gardner is an acknowledged authority on the subject. The two next chapters are to be taken in conjunction, and had we had the ordering of the book we should certainly have reversed their sequence. "Spartan Tombs and the Culture of the Dead,"—a most valuable and well-nigh complete study,—should have preceded "Reliefs and Inscriptions on Athenian Tombs." Beautiful—universally admired as they are—Athenian grave-reliefs have, as the author fully recognises, a coldness and emptiness of faith that is disappointing. "One closes the Corpus of Sepulchral Inscriptions with a feeling of surprise—surprise that a people so gifted as the Athenians should be so helpless and tongue-tied in the presence of death." We have written so lately on the subject of Athenian beliefs, as reflected in tombs and burial customs, that we cannot do more than say that the account of the Cultus of the Dead is admirable,—only noting that we do not think Professor Gardner allows sufficient weight to the influence of the art type of the Spartan on the Athenian reliefs. The chapter in Epidaurus is to us the least satisfactory of all, the account of the monuments, ground plan, and chiefly of the inscriptions is good and full, but Professor Gardner ignores wholly a book which he can scarcely have left unread; the "Isyllus" of Dr. Wilamowitz Moellendorff, a book of which it is not too much to say that it revolutionises wholly our views of the cult of Æsculapius. Professor Gardner seems still to hold (and we feel sure he must have his ground for so doing, only he nowhere states it) the old view we thought exploded of the late rise of the cult of the god—whereas Wilamowitz traces him back to the earliest days of primitive Thessalian worships. The chapters on Eleusis and Dodona, which might well have opened the book, are delightful reading. On the delicate ground of the mysteries the writer holds an even path between the absurd credulities of Warburton and the brilliant but too destructive rationalism of the great Lobeck. He points out in interesting fashion that in the Sekos of Eleusis we have the only one and ancient parallel to a Christian church or a place for the assembling of the worshippers. He also shows that the excavations have made clear that no elaborate scenic effects, such as the ascent and descent from and into subterranean chambers, could have been attempted. Into the complex question of the stratification of the various temples, wisely, in a book for popular use, he does not enter. In taking leave of a delightful book, we can only emphatically record that what the author has attempted he has attained. To use his own apt phraseology, he has fulfilled the mission of the archæologist—he has furthered not only the *veri*fication but the *vivi*fication of ancient history.

THE COMPETITION FOR THE CHRISTCHURCH NEW CATHEDRAL, VICTORIA, B.C.

THE drawings submitted in this competition have recently been exhibited at the Church House. The fourteen sets of drawings received, six being by Colonial and eight by English architects, have been judged by the assessor, Sir Arthur Blomfield, but the purport of his award has up to the present been purposely concealed.*

Briefly summarised, the conditions ask for a stone church in the Gothic style, to seat 1,200. The cost is to be limited to 30,000*l.*, and the design is to be capable of being carried out in three sections. Three premiums were offered, of 150*l.*, 100*l.*, and 50*l.* The assessor has selected the three best designs, we are told, and the final selection will be made by the Committee on the spot.

The three selected competitors will be required to prepare further plans and specifications, and the cost will be made a condition of payment of premium. No premium is to be awarded if the cost is 10 per cent. beyond the stated sum.

The site is on the top of a hill, which can be seen from the bay in approaching the town.

In the absence of the award of the assessor, we have made our own selection, and this has been the easier, owing to the low standard of design which marks the majority.

There is one design, that of "Old and New," which stands far beyond all others in artistic treatment, and there are two others which are good in a less degree, under the mottos "Ars" and "Duomo."

The arrangement of the plan of "Old and New" comprises a nave of three bays with north and south aisles, which are to be retained for monuments unless extra seats are required, and for this purpose the windows are kept high. The nave is entered from a porch with west and north doors. There are also north and south transepts of small projection, and these are respectively flanked by the morning chapel and the vestries. The choir is surrounded by choir aisles, and the ambulatory at the back of the altar is prolonged into one walk of the cloisters, which surround a courtyard with a fountain in the centre. This is placed immediately behind the morning chapel, and on the opposite side of the cloisters to the west a rectangular chapter-house is placed. The variety of the plan is likely to lead to good elevations, and there is no disappointment in that respect. The west elevation is flanked by two towers, which are kept plain in character. They are relieved by two rich staircase turrets placed against them, and finished with timber flêche roofs. The whole of the west end between these two turrets is occupied by a two-light traceried window of much beauty of design. A flat arch below, spanning the whole width over the west doorway, is also a noticeable feature. Above the window a gable encloses a figure-subject of the Crucifixion. The gable is surmounted by an open stonework tower, standing on the piers of the porch, through which is apparent a slender spirelet. The treatment of the west end is original, and the lines of the steps that approach the entrance enhance the beauty that the design undoubtedly possesses. The angles of the transepts and the east end are each marked by a turret. The architectural quality of this design is much in advance of the remainder, and, in our opinion, to this must be assigned the first place.

The second place we should assign to the design by "Ars," which is treated in a plain Early Gothic style of a severe type, but the proportions are, in most cases, good. The plan shows a nave of six bays, north and south aisles. The entrances are from the west front and a south porch. A north entrance porch also leads into the transept. A central tower and spire marks the intersection of nave and transepts. The chancel is in three bays, and is furnished with return-stalls for the clergy. There are also choir aisles, and a passage at the back of the altar. It is proposed to build an octagonal chapter-house at the south-east corner, with entrance from the choir-passage.

The third place we should assign to "Duomo," though it cannot be called a very good design. The fault of the design is the massive, ill-proportioned exterior appearance of the domical covering, which has not been at all happily treated. The plan shows a narthex at the west end, with entrance from north and south, and a small circular baptistery in the west wall. The nave is in six bays, with north and south aisles, and a dome in wood marks the intersection. The south transept has an entrance porch and a gallery,

* Sir A. Blomfield considers that it would be hardly right to make the award public in this country before the Committee at Victoria, by whom he was commissioned as assessor, can have received it and sanctioned its publication; and in this of course we entirely concur with him.

and a morning chapel and the Bishop's vestry are on this side of the chancel. The chapter-house is at the east end. The choir appears to be too small. "Old and New" is really the only design of first-class merit; and those beyond the three we have mentioned do not present any qualities to call for serious consideration or description. The exhibition is robbed of much interest by the inevitable absence of the assessor's award and the names of the architects who have sent in designs. We shall await the issue of the award with some interest.

NOTES.

A SIGNIFICANT feature of the recent discussion between Lord Salisbury and the labour delegates on the eight hours question was the unanimity with which all the speakers deprecated strikes. The unfortunate people involved in the Durham miners' dispute have certainly good reason to denounce in unmeasured terms this barbarous and, as it has proved, wholly abortive method of endeavouring to settle wages questions. The strikers themselves,—that is to say, the majority of them,—only very reluctantly recognised the futility of their demand for the old rate of wages, and it was not until last Saturday week that they empowered the Federation Board to try and arrange matters on the best obtainable terms. The Board offered, on behalf of the men, to resume work at a reduction of 7½ per cent.,—precisely the terms submitted to them by the owners at the commencement of the dispute; but it was shown that it was now too late in the day to take that figure as a basis for settlement. Weeks and months of dead loss, owing greatly to the unreasoning hostility of the strikers, has placed the coal-owners in a far worse position than when they declared a 7½ per cent. reduction imperative; while the men have sacrificed an immense sum in wages unavailingly and unnecessarily. That they are beginning to recognise that their policy has been a mistaken one is evidenced by an expression on the part of the Federation Board of their willingness, at the earliest possible moment after re-starting work, to recommend the formation of a Wages Board for the settlement of all wages questions in the future. Such boards have proved successful in various industries throughout the country,—and, we believe, in other districts, in the coal trade itself,—and the sooner the Durham colliers protect themselves in this way from the possibility of the recurrence of such a disastrous conflict as this, the better it will be for them and the country at large. There can be no doubt, however, that the mischief already done is to a great extent irreparable. For one thing, so much "outside" coal is getting a footing in places heretofore drawing their supplies wholly from the Durham pits, that some of the latter will never again, probably, have an output equal to that of the past, while the actual damage sustained at other pits through the compulsory stoppage of various necessary operations will also have the effect of preventing many of the men from resuming their work when a settlement is arrived at. The miners' latest suggestion is the withdrawal of all previous offers, and the submission of the matter to open arbitration.

THE concession obtained by Mr. Blundell Maple in regard to cheap trains on the Metropolitan Railway, and, in consequence, on the Manchester, Sheffield, and Lincolnshire Railway at the London end, when completed, is of importance. The maximum fare for five miles and under, including return, is 2d., and for longer distances in proportion. This concession rendered any further discussion of a new clause in the Manchester, Sheffield, and Lincolnshire Railway Companies' Bill on its third reading last week unnecessary. This increase of facilities for workmen's locomotion will certainly make this railway extension popular among large numbers of artisans, though it will in no way lessen the dislike with which the residents in the neighbourhood of St. John's-wood regard, and must continue to regard, the placing of a new terminus in this locality. Advantages of this kind procured for the artisan classes by Members of Parliament on the Conservative side, and such legislation as the recent Factory Act, are noteworthy, because they show that the interests of the working man are not neglected, even if he is not represented by members of his own class.

MR. LAWSON TAIT, the well-known Birmingham surgeon, last week unveiled a fountain and clock tower at Willenhall, which has been erected by the inhabitants to the memory of Dr. Joseph Tonks, who died at the early age of thirty-five. Among many suitable remarks, Mr. Tait, in his speech at the dinner given in the evening, threw out the useful and somewhat original suggestion that, instead of the senseless practice of erecting monuments to the dead in cemeteries, it would be a more useful tribute to their memory to erect drinking fountains and clock towers in the streets, place pictures in public buildings, and make improvements in schools. This is a suggestion which is worth taking to heart, and, though it might lead to the production of objects of indifferent taste at first, it must lead to useful results from a sanitary, if not always from an æsthetic, point of view. In the long run it would certainly lead to a more varied, and probably a higher, form of art than we find among the tombstones in the majority of churchyards and cemeteries. The rapidity of the growth of opinion in favour of cremation must help to the formation of new views of the construction of memorial to the dead; and, seeing that cremation is advocated solely on sanitary grounds, it must eventually become associated with other public sanitary measures like fountains, public buildings, playing-fields, public gardens, and the like. At present the memorials which are not raised in the churchyards and cemeteries go to the decoration of the church itself, but, while these need not be neglected, the town-hall, public library, market-place, and the streets, should not be forgotten. Even in the matter of restoration and preservation, there are many public objects such as market crosses, tolbooths, sundials, and bridges, which are falling to decay more from lack of thought of their guardians than wilful negligence, and the preservation of which would be more interesting and useful memorials of fellow-townsmen than the monotonous structures raised to them in the cemeteries.

THE first important step taken by the "Architekten Verein" of Berlin as regards the alteration of the general building regulations of 1887 was taken last week. The nature of the alterations thought necessary, from the architects' and land-proprietors' points of view, was described by Herr Heim. The main points for alteration, according to his report, refer to (1) the proportion of ground that may be covered by buildings on small sites, (2) the planning of basement floors, (3) the maximum height of the top floor of a house above the street level (at present only 17·5 mètres), and (4) the more lucid wording of the disputed paragraphs of the present code. The proposals of the Architekten Verein (as well as those of the Vereinigung Berliner Architekten) will probably receive due consideration by the Government Board of Works when the alteration of the code is under their consideration, but we scarcely believe that concessions will be made where the owners of land and their professional advisers would most wish it, even at the cost of lesser light and air and a worse hygiene for the city. The authorities will probably grant facilities where they are least expected,—*i.e.*, in those paragraphs which were framed to ensure the "fire protection" of the city. Some of these paragraphs are practically of little use, as, for example, that which requires each house to have a passage through which a fire-engine, fully horsed and manned, can be run into a courtyard, a facility which no firemen have ever made use of. This regulation, which has caused endless trouble to architects, will probably be expunged, while, on the other hand, a provision for two staircases to all tenement mansions may be substituted.

THE case of The Churchwardens and Overseers of Norwood *v.* Salter, which was decided by Mr. Justice Hawkins and Mr. Justice Collins a few days ago, settles an important practical point of rating law. Without going into technical details, and into the construction of some Acts of Parliament, which, like a good many statutes, are obscure, it is sufficient to say that by the Poor Rate Assessment Act, 1869, the owner of houses under the annual value of 8*l.* can contract with the parish to pay the rates instead of the occupiers, receiving in return a certain sum in the nature of discount. The object of this arrangement is twofold: the parish gets its rates with certainty and without difficulty, and the ratepayer in return for his responsibility gets a small pecuniary advantage. The question which the Court had to decide was whether, when the annual value of the house rose above 8*l.* (in the present instance it reached 11*l.*) during the period of the agreement, the occupier, and not the owner, could be charged with the rates. The Court decided in effect that the increase in the annual value nullified the agreement, and that the occupier, on whom the primary liability for the payment of rates falls by the general law, became *ipso facto* as responsible as if no arrangement had been made. If this decision proves, as we think it may, inconvenient in practice, some member of Parliament will have to remedy it by a statute.

FROM May 5 to 8, 1842, the great fire of Hamburg raged, and left a large part of the city proper in ruins. Last week the fiftieth anniversary of the rebuilding of the city was celebrated, and due regard was taken of all those who had so earnestly laboured at the time to overcome the difficulties of rapid reconstruction, and at the same time to improve the portions of the town which were destroyed. Amongst the hardest workers were the members of the "Special Building Commission," which included the civil engineer, W. Lindley, and the architect, G. Semper. This Commission, which was but three and a half years in existence, did wonders. Under its direction a very valuable survey of the site was made, the streets were newly laid out, new building regulations framed, public and private buildings rebuilt, and various improvements, including the first laying of a good sewerage system, the construction of gas and water works, and the reconstruction of harbour and canal embankments, carried out. Mr. Lindley was the member of the Commission to whom Hamburg owes the original plan of the reconstruction of the streets destroyed. Unfortunately, the great extension of road traffic was not foreseen, and hence the city at present has to complain of having too narrow thoroughfares. The development of Hamburg since 1842 is something remarkable, especially in the last decade. What with its new free harbour, which is continually being extended, and its excellent Board of Works, which pays attention to the artistic as well as the practical side of every improvement taken in hand, Hamburg may be said to hold its own as the finest of the Continental commercial ports.

WE regret to hear that there has been a serious proposal entertained to alter and add to the east end of the fine parish church at Wrexham. Of course we should maintain, as we have always maintained, that

if there is a real necessity to enlarge an ancient church to accommodate an increased congregation, practical requirements must take the lead. But, if we are to take the very full report of a recent vestry meeting given in a copy of the *Wrexham Advertiser* which has been forwarded to us, as a guide, it seems very doubtful whether the circumstances can be said to constitute a practical necessity. The main point in favour of the alterations seems to be that the Vicar wishes to get the organ removed to the east end, and there is not space for it there at present. In the present day, when an organ can be arranged to be played from any part of the church by electric connexion, there is not nearly so much reason for the eastern position as there used to be; the organist can sit with the choir, though the organ remain at the other end, and can thus hear them and regulate his accompaniment accordingly, and there is no doubt that the effect of the organ itself is far better at the west end of the church than in an organ-chamber or aisle near the chancel. The present position of matters is that a resolution was carried to the effect "that the further consideration of the plans and report be postponed for two months [one of which has now nearly run out], and that the Wardens obtain in the meantime an elevation and plan of the proposed alterations at the east end, and also consult a leading organ-builder as to the advisability of removing the organ from the west to the east end of the church." The architects who have been consulted are Messrs. Middleton, Protheroe, & Phillot; the head of the firm is the well-known Slade Professor of Fine Art, and we should hope that under such advice all possible respect would be paid to the claims of the ancient structure, and that nothing would be done in any case which would architecturally disfigure the church; but we very much doubt whether there are sufficient grounds for meddling with it at all. A correspondent at Wrexham assures us that the congregation is not increasing in numbers, owing to the fact that many who lived in the town are drifting out to the suburbs.

CORONERS' juries are not always the best guides in technical and professional matters, but a recommendation attached to a verdict recently given by a jury in America is hardly to be wondered at. During a high wind last April a building in course of erection in Chicago was blown down, six persons being killed and several more injured. At first the disaster was looked on as a natural result of the exceptional force of the wind, it apparently not occurring to anyone that, even for the short time that buildings are in course of construction in Chicago, they might be at the mercy of a gale springing up. The coroner's inquest, however, has brought to light some unpleasant facts, and the jury has had the courage to return a verdict in accordance with the evidence. The "architect" is said to have been simply a contractor, and therefore, presumably, with no professional training. The work was found to have been improperly carried out, and the inspection, which should have been made by the public authority appointed for the purpose, is described as having been a "mere pretence." The jury have, accordingly, found the accident to be due to criminal carelessness on the part of the Commissioner of Buildings, two of the inspectors of the Building Department, and the owner and architect of the building, and the case will be presented to the grand jury. The recommendation of the coroner's jury is that architects should be required to take out licences after proving their competency, but as no architect appears to have been employed in the case under notice, the recommendation has somewhat the appearance of a *non sequitur*.

ON June 21 will be offered for sale, at the Mart, the Lavington and Beechwood House Estates, of about 3,100 acres, in West Sussex, lying within Rotherbridge Hundred and the Rape of Arundel. Lavington (or more correctly Woolavington) and West Lavington parishes consist of certain scattered portions. In the Conqueror's day the manor, being nine hides, was held of Earl Roger de Montgomeri by Ivo, and of Earl Godwin by a Godwin. It subsequently passed to the D'Albinis and Fitzalans, and has become part of the honour of Petworth. The large house built here by a Garton in 31st Elizabeth was replaced with a smaller one, after J. Lewis's designs, in 1794, by John Sergeant, who had succeeded to the property on marriage with Charlotte Bettesworth. In the churchyard at West Lavington Richard Cobden was buried. This property, standing above the valley of the Rother, and comprising portion of the timber-covered Downs, commands a fine view over the Weald.

IN a "Note" on November 16, 1889, we printed a brief description of Her Majesty's Theatre, which, together with the "United Hotel," is about to be demolished to make way for, it is said, a new hotel. The site has been that of an opera-house for nearly two hundred years, one having been opened by Betterton on April 19, 1705. The former house on this site is worthy of remembrance as that wherein some of Handel's works, including several of his operas, "Israel in Egypt" and "Belshazzar," and, we believe, "Acis and Galatea," were first performed in London.

AT the Vienna Exhibition a gold medal for painting has been awarded to Mr. John R. Reid for his painting "The Shipwrecked," the same very powerful work, we presume, which was exhibited at the Royal Academy three or four years ago. This is the fourth gold medal which Mr. Reid has received during the past five years, the others being, Berlin 1887; Paris, 1889; Munich, 1890.

THE *Manchester Guardian* published on Tuesday a map of the drainage basin of the river Irwell, showing by varied shading which districts have undertaken sewage schemes, which have completed them, and which are still persisting in polluting the river. The districts have been thus classified in a Report recently presented to the Mersey and Irwell Joint Committee by their chief inspector. The local boards which pollute the Irwell are, according to the map, Whitworth, Ramsbottom, Bury, Radcliffe, Little Lever, Kersley, Failsworth, Droylsden, and Gorton.

ARCHITECTS in Wales (or some of them) seem to have an eye to business in a sense which is not to be approved, if we may judge from the prospectus of the "Wales and West of England Girder Company" which has been sent to us. Five of the directors are architects, and the circular states that the company "will be in a great measure co-operative in its transactions, embracing as it does architects, engineers, contractors, builders, iron merchants, &c., and therefore the Directors have every confidence in its success." Further on it is stated that "the Directors will give the preference in allowing shares to Consumers or Professional men who can introduce business to the Company." As far as the "professional men" are concerned that means, of course, that they are to specify the Company's iron work for use in their clients' buildings, in order to swell the profits of the Company of which they are shareholders. None of the "Director" architects, we are glad to find, are members of the Institute.

BARRETT BROWNING MEMORIAL, LEDBURY. The competition for the Barrett Browning memorial at Ledbury has resulted in the selection of the design by Mr. Brightwen Binyon, of Ipswich; that by Mr. Lunn, of Malvern, being placed second. The designs will be exhibited for a few days at the Town-hall at Ledbury.

ARCHITECTURE AT THE ROYAL ACADEMY.—IV.

1,669; "Reredos for Grayingham Church, Lincolnshire;" Mr. A. H. Skipworth. A very delicate little water-colour drawing; over the centre portion, in which is a sculpture of the Crucifixion, is a projecting semi-octagon canopy of Late Gothic form and general detail; the side panels are filled with pierced ornament with a blue ground behind, which is only partially orthodox, and partially a free floral detail. Two narrow niches divide the centre from the side panels. This is a delicate and original bit of work.

1,671; "Mosaic Pavement at Torcello;" Mr. A. C. Blomfield. Not exactly what is generally understood by mosaic, it is rather a marble inlay, of unusual colouring, the effect of which is well conveyed in the water-colour drawing.

1,672; "An Artist's House at Croydon;" Mr. C. Henman. It has three plans showing how the studio is connected with the house off a landing of the staircase, in a convenient fashion yet so as to keep it a little apart: the small house is compactly planned, but there is not anything in the design which especially marks it out as an artist's house, the architectural treatment being a common enough type of country-house picturesque. The studio window rightly makes a point in the exterior design.

1,674; "Cloisters, Xanten, Germany;" Mr. H. W. Brewer. This and 1,694 ("Choir, Xanten") are drawings which have appeared in our pages, or rather they are the pencil forms of drawings executed in ink for this journal. The subjects will be found in the *Builder* for April 5 and May 3, 1890. The pencil drawings are admirable specimens of effect produced without labour, being in fact very slight and free in execution, but quite complete in effect.

1,675 we have already noticed; 1,676 "Porch Modena Cathedral," and 1,677, "Doorway, Genoa Cathedral," both by Mr. F. W. Bedford, are among the drawings, we presume, which were skied by the painter R.A. who wished to "cover the walls" in a symmetrical manner; they are probably good sketches, but cannot be seen. 1,678, the large frieze by Mr. Babb, we have already referred to; 1,679, the staircase of the Sheffield Municipal Buildings, to which we have also referred, is published in the present number.

1,680; "Staircase, Buller's Wood, Chislehurst"; Mr. Ernest Newton. A pleasantly-treated simple staircase interior, with an arcade of two arches over the first landing, carried on a column seated on the newel, and which is made to show up effectively, white against the shadowed portion of the upper staircase. The drawing is a slight but very artistically-executed one by Mr. Raffles Davison.

1,681; "Design for Memorial to Mary Tudor, St. Mary's Church, Bury St. Edmund's;" Mr. A. E. Street. We published a lithograph from this drawing on May 14, to which we can refer the reader for the design, though it does not give the colour and marble texture, which are very well rendered in the drawing. This is a very interesting variation on the sarcophagus type of tomb, with what we take to be a bronze cross and canopy affixed to the top of it, in relief from the curved surface of the marble. The three small plaques in the side of the monument are filled up with yellowish veined marble, which we suppose has some purpose of taking inscriptions or engraved symbols, not indicated on the drawing; as mere plaques they cannot be said to have any decorative value, in regard to form at least, though the colour harmonises well with that of the darker marble. But in the main this is a very interesting and well considered piece of work. Perhaps the brackets at the end have a little too much the suggestion of being clamps to hold the whole together.

1,682; "Corner of a Drawing-room"; Mr. J. Armstrong Stenhouse. The title is we believe a blunder of the Academy catalogue, and is that of another drawing which was not hung, the real title of this being 'Interior of Hall and Ball-room." It is a pretty little water-colour drawing of part of a long room with an open hammer-beam roof, ornamented with pierced panel work. The mullions shown in the large window at the end cut very awkwardly into the circular arch of the window, but the general style and tone of the little drawing are admirable.

1,684; "Competitive Design for Municipal Buildings, Oxford;" Mr. Halsey Ricardo. A sketch competition design for Oxford Municipal

Buildings, a funny little elevation executed on grey paper, and the walls and mullions tinted white. Perhaps it owes some of its effect to this peculiar method of execution, but the treatment is certainly original; the lower portion is plain wall pierced by small mullioned windows and a low-proportioned round-arched door (modern American fashion) in the centre, the upper portion of the wall is almost entirely pierced by the range of large mullioned windows of the Assembly-rooms, with a cornice immediately on the top of the mullions; the large windows have piers between them with niches and statues, and a row of shields under the sills. The main feeling is Gothic, but the library on the right seems tacked on in a Classic style, possibly to harmonise with something round the corner in High-street; the site for the building is a very straggling one. A small plan is added. This little drawing shows a great deal of architectural originality, and we may surmise that the finally-selected design will not show anything as picturesque as this façade would have been.

1,686; "Studio House"; Mr. Maxwell M. Smith. This is noticeable as one of the few drawings showing a house entirely in geometrical drawings and plans. The house is planned chiefly for the studio, the other rooms merely collecting around that. There is however nothing out of the common in the design, except the little joke of breaking the long sloping line of coping of the lean-to roof of part of the offices by cutting a semi-circular scoop out of it half way down, and placing a stone ball on each side, which is piquant.

1,691; "S. Miguel, Jerez, Spain;" Mr. F. W. Bedford. A good interior view, hung not so high as the other two by the same hand, though still too high to see the detail; but this is evidently a well-executed drawing of its class. Two other drawings by Mr. Bedford, 1,699 and 1,700, "West Doorway, S. Miguel, Jerez" and "Interior, Cathedral, Genoa," are again skied on the other side of Mr. Babb's large drawing, balancing Nos. 1,676 and 1,677. These five drawings by one architect are thus all thrust up together on to a part of the wall where they cannot be seen, another instance of the unfairness and stupidity with which the hanging of the architectural drawings has been conducted this year. It might at least have occurred to the "hanger" that if a man had sent in five drawings which were worth a place, it would have been fair to divide the honours of "the sky," and to have put say two out of the five where they could have been seen.

1,692; "A Portion of a Proposed Memorial Church;" Mr. H. D. Wilkinson. This is rather a tame pen drawing, but it is an original design. The nave windows are large ones of Late Gothic type, but the buttresses between them are treated in a semi-Classic manner, the upper part above the string-course slightly battered and cut off square below the roof-line, finishing in pedestals with figures on them. The lower part of the buttresses is connected by a wall nearly flush with them, with long low windows in it; it is not easy to see the meaning of this without a plan, there does not seem space for an aisle of passage, which the windows look like. However, this is at least a church with a little originality of treatment about it.

1,693; "Hunting Lodge near Malmesbury, Wilts"; Mr. H. Wilson. A light sketchy well-executed water-colour of a stone house of quiet domestic architecture, mullioned windows with Classic bits of cornice over them; there is character in the management of the octagon bay with the door in one oblique side of it, and the chimneys have a quaintness of their own.

1,695; "A Country Vicarage"; Mr. T. MacLaren. A capital little pen drawing, but the extreme and defiant plainness of the house will assert itself, perhaps, more than is expected, when it has only the light of common day to set it off, instead of the glancing effects of the light in a cleverly-managed pen drawing. After all, we want a *little* architecture in a house, even of the simpler kind. Let the author ask himself the question candidly—Would this house have had a chance of being hung if sent in in the form of a couple of elevations, plan, and section? We doubt if in that form it could have any claim to be hung in the architectural room of an Academy of Arts. It is hung for the drawing, in which there is art, no doubt. But then, is that architecture?

1,697; "Entrance Front, New House, Milverton;" Mr. H. Field. There seems every effort to make it look like an old house, perhaps that is the reason we are specially informed that is a "new" one.—It is shown in a pleasant sunny-looking pencil sketch, rather spoiled by the rough and ready manner of indicating the trees.

1,698; "Altar Cross for Private Chapel, Welbeck Abbey;" Mr. H. Wilson. This is a fine piece of work and a grand drawing; Mr. Wilson's power of indicating texture and surface with the brush is remarkable, witness the drawing of the brass work here. The upper portion of the cross is treated in light enamel decoration, with circles of darker colour in the centre of the arms; at the crossing of the arms is a larger circle within a square, with the angles filled up with beaten ornament. The massive brass stem is also relieved by a circular enamel plaque affixed to it half way up, shewing the expulsion from Eden, and in the base the serpent and the tree are introduced in a richly coloured enamel following the lines of the brass work and contrasting finely with it. This is the finest drawing of decorative work in the room.

1,704; "Dining-room, house at St. Sebastian, Spain;" Mr. R. S. Wornum. A capital little water-colour drawing of a quiet but original bit of interior treatment of the wall of a room. The mantel is oak, and the room panelled with oak to a height half-way between floor and frieze; the mantel is carried up with ornamental panelling to the frieze; beneath it is a richly-carved sub-mantel and pilasters, enclosing a plain white marble chimney-piece contrasting well with the wood. The plaster frieze is pleasantly treated in delicate mouldings in relief, forming variously shaped panels.

1,707; "Aisle Window, Blackburn Church: sketch design"; Mr. Ion Pace. A pretty three-light window with Old Testament subjects in panels under architectural canopies of the accepted type; the scheme and contrast of colour is effective.

1,703; "Interior of a Library in London;" Mr. G. Aitchison, A.R.A. A little coloured elevation of a library with bookcases of an Elizabethan pattern ending in an entablature two-thirds of the height of the room, over which an effective wall-paper is delicately indicated. The chimney-piece is in a light grey marble with panels of darker and richly-coloured marble. The effect of the whole is very tasteful and harmonious, though showing nothing new or original.

1,701; "Interior of Nave, Gloucester Cathedral;" Mr. C. E. Mallows. This is the drawing published as part of our illustrations of Gloucester Cathedral in the *Builder* for Dec. 5, 1891. It comes out very well on the walls; being a pen drawing somewhat boldly and strongly executed it is none the worse for being hung a little high.

1,710: "Stained-glass Window, with Early Renaissance detail;" Mr. Clement Heaton. This is an unusual window design; a kind of conventional Renaissance tabernacle is erected on the window, leaving some space at each side; in the lower compartment of the architectural frame (which looks a little too like a fireplace) is a representation of the Nativity, in the upper more lofty arched compartment the worship of the Magi; over the cornice is a small shrine by way of "attic," in which an angel is seated. The space between the architectural frame and the edge of the window is filled with a string of knots of foliage on white glass ground, somewhat of the type of the modelled foliage in the jamb of the Baptistery of Florence doors; realistic sprigs connected on a sort of string. This is not good decorative design, though it is in keeping historically. The general effect of colour is good.

1,709; "One of a Series of Windows, South Side, British Church, Moscow;" Messrs. Ward & Hughes. A lofty two-light window treated in two stories, the upper showing the marriage at Cana, the lower the raising of Lazarus, each subject going through the two lights and divided by the centre mullion. It is notable for the good drawing and design of the figures and draperies, especially in the Lazarus subject, in which there is more of movement and expression in the figures than is commonly found in stained-glass design. The subjects are crowned with conventional representations of Gothic vaulting as frequently introduced as a canopy to niches.

APPOINTMENT. — Mr. Reginald G. Pinder, of Bournemouth, has been appointed Architect to the School Extension Committee of that town.

FRENCH ART OF THE YEAR.

A CERTAIN special interest attaches to the Salon of this year, from an architect's point of view, owing to the presence of a larger proportion than usual of pictures avowedly studied and painted as ceiling or mural decorations, for the Paris Hôtel de Ville and other buildings. The French seem now to have fully adopted the system of executing such paintings on canvas [and fixing them in their place afterwards, so that the large compositions executed for this purpose can be hung in a miscellaneous picture exhibition and judged along with the rest as framed pictures, before being finally placed *in situ*. This is convenient for those who wish to study such decorative paintings collectively, though it is hardly fair to the pictures themselves that they should be seen apart from the architectural framework for which they are intended; at least, it would not be fair if the paintings had the true character of mural decorative art. Unfortunately most of them have not, they have the character of easel pictures much more than of mural pictures, and really look more in place in an exhibition than they will on the walls they are intended for, except in the case of ceiling paintings which, painted to be seen horizontally, have to be hung vertically at the Salon, with rather curious results. This system of painting on canvas and then fixing up the pictures has the advantage of avoiding the chances of injury to the paintings from damp in the walls or efflorescence on the plaster, but on the other hand it removes the paintings from that intimate and monumental relation with the construction which seems the very essence of mural painting; and we cannot help thinking that the system has a bad effect upon the artists, and leads them to forget the true conditions of mural painting, and to indulge in vagaries on which they would hardly have ventured under the sobering limitations of fresco painting on the actual wall surface.

M. Benjamin Constant's "Paris Conviant le Monde à Ses Fêtes," the painting for the central ceiling compartment of the Salle des Fêtes of the Paris Hôtel de Ville, though odd enough in idea, is perhaps the most successful work of its class in the exhibition. It has the merit of being painted as a picture on a limited plane, and not a perspective *di sótto in su*, as are many of the other decorative designs. "Paris" is represented as a lady in a ball dress seated in the clouds, and partially relieved against a break of blue sky, but the figure is kept so faint as to lose all realism and appear rather a suggestion than a figure. Below, geniuses, in masses of drapery with a yellow glare, blow trumpets. The effect is somewhat violent in colour, but it is brilliant and decorative. The mistake is the introduction of a bit of the façade of the official buildings at the top of the Place de la Concorde, in the lower corner of the picture, the building being quite out of place in such a composition and appearing crushed beneath an allegorical figure leaning over it. It would have been much better if this realistic architecture had been omitted; it is out of the scheme. But otherwise, this is a brilliant and effective piece of work, though there will always be the difficulty of knowing which way up to look at it when it is in its place on the ceiling.

That is the mischief of ceiling painting, and the only defence for the system of painting in upward perspective from the eye (*di sótto in su*), which is a rampant sham, but at least one knows which way to look at it.

M. Ferrier exhibits a compartment for the ceiling of the same rooms, "Les Fleurs," also bright in colour, two women below cut off by the frame, and a girl flying in mid-air with a basket of roses; not bad as decoration, but fancy it on the same ceiling with Benjamin Constant's painting! The collocation will be absurd; they belong to two different worlds of painting. Then we have M. François Flameng's immense, brilliant, and very cleverly-drawn ceiling for a private mansion, "Dans l'Olympe," the gods and goddesses drawn with their feet towards the spectator, and a circular temple in the angle appearing to stick out into space; a conventional representation of the Signs of the Zodiac forms a circle concentric with this across the middle of the picture. Some of the figures are admirable, that of Mars especially, seated on steps, and when the composition gets into its proper place on the ceiling it will be a fine thing of its kind, though the wrong kind. On like principle does M. Moreau-Néret design "for a terminus hôtel" a ceiling surrounded by

a trellis fence in upright perspective, and "Abondance," "La Chasse," "La Pêche," and other such personages playing in the blue sky. Then we have another Hôtel de Ville ceiling, M. Morot's "Les Danses Françaises à Travers les Âges," representing the dance of different centuries and costumes up to the modern waltz, carried out on clouds by figures in the costumes of the various periods; cleverly painted, but we fear amusing in a sense not intended by the painter.

A curious and clever experiment in decorative painting is that by M. Ruel, "L'Art Présentant à la Ville de Moscou la Peinture et la Sculpture Française," in which the figures of Painting and Sculpture are treated as if they were modelled figures executed in silver (life-size), and two little boys with symbolical shields occupy the centre of the composition in front of the principal seated figure. This is absolutely decorative, that and nothing more, and as a new experiment in decorative painting is worth attention. Among other decorative paintings are M. Aubert's "Patriarchs, Prophètes," a processional decorative composition of the pure school, in one plane and on a gold ground (rather dull though!); M. Bertaux' clever design for a stained-glass ceiling,—but here again we have this system of vertical perspective, a row of foreshortened columns in the side panels of the glazing,—the centre panel showing flying figures which are spirited and effective; M. Debon's "Famille, Travail, Exercise, et Repos," a wall-painting for the Mairie of Saint-Maurice, in which modern figures are treated in a sufficiently conventional manner, and which tells its story well; and M. Ehrmann's lunette figures for spandrel spaces in the Salle des Fêtes of the Hôtel de Ville, representing Bretagne and Auvergne. These are very successful, well contrasted, combining decorative effect with spirit and meaning. But a vertical spandrel like this is no doubt a much easier problem than a ceiling. Finally, M. Tony Robert-Fleury has painted for the Hôtel de Ville a figure representing "Architecture," a richly-draped finely-modelled woman who holds a pair of compasses and leans on a carved Renaissance pedestal; this is a fine work both in design and colour, but impresses one as not powerful and monumental enough for a figure symbolical of architecture, and the head is small for the body, which adds to this impression. Change the "attributes," and the figure would better represent "Painting."

At the Salon one looks for M. Tattegrain's picture as at the Academy one looks for Mr. Orchardson's. His work this year is a remarkable revival of a historical scene, "The Entry of Louis XI. into Paris, August 30, 1461." The picture is explained by a quotation from the chronicles of Jehan de Troyes. It is a street scene in Old Paris, showing the ancient houses, the crowd of sightseers, and the humours of the show; the three girls dressed as mermaids, standing in a tank of water; in the background on the other side of the street is a representation of the crucifixion by three men tied on crosses, which formed part of the show; in the centre of the street Louis XI. on horseback, and the knights in armour who formed part of the procession. Every detail in the picture is carefully studied, every figure in the crowd; perhaps the whole looks a little too clean and respectable for a Mediæval crowd in a Mediæval city. The other important historical picture is M. Detaille's representation of the marching out of the small garrison which defended Huningue against the Austrians in 1815, and were received with honours by their conquerors on evacuating the town. The scene is finely rendered; the brilliant uniforms of the Austrians contrast effectively with the poor array of the small band of defenders. Another fine picture of the historical class is M. Chicotot's "Mort de Pierre Corneille," the old dying man seated in a chair and his daughter kneeling by him: a picture perfectly simple in its composition and truly pathetic in expression. M. Kratké has added one to the numerous pictures of the retreat from Moscow, under the title "Novembre 1812"; a snow landscape in the fall of the day, with the long columns of men straggling in parallel lines over the snow; a painting in which there is a tragic realism. M. Motte sends a painfully real picture of the destruction of the Swiss Guard at the Tuileries on August 10, 1792. A finer and more impressive war picture, because one with a poetic idea in it, is M. Rouffet's "Le Chemin de la Gloire," a bare landscape cut across by an equally bare high road, at one side of which lie a dead cavalry soldier and, a little apart from him, his dead horse, while in the distance a troop of cavalry disappear over the hill. This is one of a class of pictures in which the French excel, and of which we have unfortunately so few to show among us; pictures which are interesting not only for their execution but for the thought which underlies them. M. Roussel's large painting, "Le Corps de Marceau Rendu à l'Armée Française," is a fine and impressive one of its kind; it is divided into two main groups, that of the officers awaiting the return of the body of their brilliant comrade, and that of the group who approach in the middle distance with his bier borne upon their shoulders; the spectator involuntarily identifies himself with the group in the foreground; the composition is natural and unforced, and tells its tale completely.

Among the figure pictures of the more imaginative class are some which detach themselves from the mass of paintings as of special interest. M. Gerôme's "Ils Conspirent" is a curious and original treatment of the subject; a long bare room nearly in darkness, at the further corner of which are three men seated at a table lighted by a single candle, two of them with their backs to the spectator; of the third only the profile is partially seen, but the expression of something sinister going on is completely conveyed. Nude studies are not quite as numerous or as unmeaning and devoid of point as we often find them. Among the more poetic works of this class the finest perhaps is M. Lœwe-Marchand's picture from Dante of "Myrrha" (*Inferno*, canto xxx.), a naked figure crouched in the foreground of a rocky gorge; in the background Dante and Virgil turn back to look at her; the figure is finely painted and the face darkly expressive of evil passion; this is a poetic conception and not a mere figure study. Benner's "Printemps," a figure reclined on the grass partly in shade but with the head in full sunlight, is one of this painter's usual pretty idyllic conceptions. "Phœbe s'Éveille," by M. L. Berthault, is a fine composition of ideal figures; M. Bouguereau's "Le Guêpier," a half-nude nymph persecuted by a crowd of little Cupids, is as pretty and scholar-like as usual with him. M. Cabane's "Nymphe" (325) is a fine example of nude painting with no particular meaning or sentiment, but striking from the richness and freedom of its execution. M. Raphael Collin's "Au Bord de la Mer," a party of girls dancing in a ring on the seashore, is one of a class of works in which idealism is sought for not in the conception of the subject but in the mode of execution; the figures are faint and dream-like in execution, and thereby removed from real life; but the painter has spoiled all by giving to these nude figures the pinched waists which come of the artificial conditions of tight dresses, a curious and unhappy intrusion of realism into what should be an ideal scene. M. Henri Martin, too, in his allegorical paintings, adopts a method of execution peculiarly suited to such subjects; we have not real bodies so much as suggestions, and this gets over a great intellectual difficulty of allegorical painting, in which frank realistic execution of figures is wont to contrast, sometimes almost absurdly, with the poetic character of the thought intended to be conveyed. Moreover, M. Martin's method of execution leads him into very fine prismatic though subdued effects of colour. He has not equalled this year his remarkable "Chacun sa Chimère" of last year, but "L'Homme entre le Vice et la Vertu" is a fine example of a painting with a moral, in which the moral has not been allowed to kill the painting, as too often happens.

The taste for medical and hospital pictures seems to have subsided again, at least we only noticed one this year; large pictures of scenes in primary and middle-class schools (educational art, one may call it) seem to be taking their turn in fashion. We do not find this type interesting. Among the immensely large pictures which are found only at the Salon may be noted M. Luminais' "Passage de la Meuse par les Francs au IVe Siècle," one of the "Gaulois" pictures, a raft propelled across a river with a crowd of men, a warrior with sword drawn and leather shield standing in front—a spirited picture, but spoiled by the bad painting of the water. M. Deully's "Orphée" is theatrical, but a new treatment of the subject, and M. Salgado's large painting, "Jésus," a single white-robed figure in a dim twilight landscape, has a certain power and pathos. Among paintings of subjects of real life a very charming one is M. Debat-Ponsan's "À La Saint Roch; Vieille Coutume du Midi," apparently the priest coming out to bless the cattle, remarkable for admirable painting of peasantry and cattle, with the cathedral standing up as a background. M. Léenhardt paints with pathos a group of Huguenot prisoners (women) on a tower at Aigues-mortes, who were separated from their husbands and kept in semi-starvation; a powerful picture of the historical class. M. Richir's "Misère," a poor pianist in an obscure corner of a brilliant ballroom; M. Richemont's "Sacrifice," an interior with two ladies burning old letters, a painting of the modern flat and thin school of execution, very well drawn and lighted; Mr. Walter Gay's "Messe en Brétagne;" are pictures with a distinctive character in idea or treatment. M. E. Michon paints a ghastly picture of the realities of a bull-fight; Mr. Bridgman contributes the unusual subject (for him) of a very beautifully-painted nude figure, "Le Songe;" and M. Lavery's "Une Équestrienne," a life-size painting of a lady on horseback, which has been seen in London, holds it place splendidly here, and looks all the better for being exhibited in a larger room, and with more space to see it than when it was in Bond-street.

The average of portraits for the year is good, and there are some remarkable ones. Among these may be mentioned M. Bonnat's uninviting but very powerful portrait of M. Renan, and the same artist's "Mdme. L. N——," apparently in rivalry of Carolus Duran, a lady in a sumptuous dress of purple velvet with a yellow-lined cloak; M. Brouillet's portrait of "Mdme. A. B——" in a white dress with the head thrown out brilliantly against a red background; M. Chartran's portrait of the reigning Pope, a very spirited and expressive performance; M. Choppart-Mazeau's portrait of his mother, an old lady in a fur cloak, painted in full daylight in the open air; M. Paul Dubois' half length of a young lady, noteworthy for its dignified composure of attitude and expression; M. Ferrier's characteristic portrait of a little girl in a green dress standing before a half-opened door; Mdlle. Fornier's fine though slightly theatrical portrait of a noble-looking young lady in a primrose-coloured dress holding a greyhound; Mdlle. Houssay's "Mdme. la Comtesse A——," remarkable for the intellectual expression imparted to a plain but interesting face; M. Renouf's "Mdme. X——," noticeable for the same kind of excellence; M. Salgrado's frankly realistic portrait of a man lounging with his hands in his pockets,—one of the *dégagé* order of portraits; and last but certainly not least, M. Benjamin-Constant's portrait of "M. Auguste L——," a man in shooting dress seated on or leaning against the end of a table with a gun, a dog beside him. Few would put down to the account of M. Benjamin-Constant this sober-looking portrait, so quiet and subdued in colour; but it is one of the most lifelike and real things in the exhibition, and another proof of the versatility of this remarkable artist.

Where, O where, is the great school of French landscapists gone? The great men are departed, and seem to have left no successors. What strikes one especially is the dull and deadly colour of nature, the lack of air and sunlight in the majority of the landscapes. It is among some of the cattle painters in the Salon that we find the most vivid and real open-air effects, as in M. Merlot's "Troupeau dans les Marais de la Somme," which may be contrasted in this way with M. Marais' "Au Retour" which hangs as a pendant to it, where the cattle are forcible and solid enough, but that is all. Again and again we find the same dull sky and livid colours in what is supposed to be the verdure. Those in which architecture or buildings are combined with landscape are the best, for buildings the French painters of the day generally treat well. M. Liepvre essays a large decorative landscape for a staircase; we do not like the notion of decorative landscape, but this one is something of a success, being bright in tone and not too realistic. M. Besnard, the king of the Impressionists, at all events does not shirk light and colour; he is represented only by one landscape, "Etang de Sologne" which is vigorous enough. There is tenderness of colour and light in M. Dieterle's "Le Calvaire de Criquebeuf-en-Caux," a scene

of high downs with a crucifix and a kneeling figure in the foreground. M. Gaillard's "Un Coin de Pré en Fleurs" is as hard as if they were paper flowers, and again there is a contrast with its pendant, M. Grivolas' "Buissons des Roses," which has the freshness of nature. M. Guillemet's "La Seine à Conflans" is a good realistic landscape, and M. Louchet's "La Seine à la Frette" has higher qualities, and is noteworthy for the harmony of the whole lines made by sky and land in the composition. M. Pointelin's "Jura" is a landscape with some of the poetry of nature in it; and M. Quignon's "Avoines en Fleurs," a sketch of undulating meadow country, is a really fine work, which we are glad to see the State has had the discernment to purchase. M. Schutzberg's "Les Bords de la Seine en Hiver" is a good real scene in its effect and lighting. But among such a large collection of paintings there are really very few landscapes that would give pause to any one accustomed to our modern English landscape school, in which at least we are far ahead of the French though it is only of recent years that this could be said. We may as well make the most of it, for it is only in this department of painting that we can pretend to beat them, including sea-pieces under the general head of landscape. The Salon sea paintings are even more bewildering than the landscapes. In M. Kuwasseg's "Coup de Mer à Trégastel" the water is more like ice; the sense of movement is lost. M. M.-Auguste Flameng paints a ship in a gale, "Marine," which at once leads one to ask whether the painter ever *saw* the sea, much less sailed on it. Certainly he never saw sea like that, nor a ship seated on it in the extraordinary way in which his craft is represented. The whole things reminds one of the model ships on inflated paper seas which are sometimes made as toys.

It is curious to note that on going over to the New Salon in the Champ de Mars one loses to a great extent this impression of dull and airless landscape. The New Salon is to some extent unquestionably impressionist in its tendencies, and the impressionists delight in painting effects of light, and seek for them. As regards choice of subject there is a prevalence also of Southern landscapes and of their strong effects of light and shade. Generally speaking, however, the Salon of the Champ de Mars hardly justifies its separate existence. It has had a great loss of course in Meissonier, and now it may be said that the lion of its exhibitions is M. Carolus Duran, who however is really in direct opposition to what are supposed to be its prevalent artistic methods, and would be more in place in the old Salon. He exhibits, as usual, a collection of his brilliant and powerful portraits of ladies in whom the interest of portraiture is divided with that of dress, or rather the portrait is a portrait of the dress as well as of the lady. The finest is the portrait of the "Comtesse de C——," in lilac satin against the background of an "old gold" velvet screen. There are other portraits by this artist of the same degree and kind of excellence, and a study of a semi-nude figure which is as fine in its way as the painting of the silks and satins. The New Salon has also its large decorative painting, by M. Puvis de Chavannes, a great canvas entitled "L'Hiver," and intended for the Hôtel de Ville. It consists as usual of groups of figures mostly of great grace and admirably grouped, and a landscape, painted in flat tones and with as little as possible of realistic truth, in the rear. The middle distance is partially occupied by trees at nearly equal distances and with bare straight vertical stems, which may be supposed to be decorative or to give a decorative character to the landscape, but which are not beautiful nor suggestive of nature. We have also M. Cornillac's large decorative picture for the Faculté de Médecine of Lyons, which would not have been painted, or not painted as it is, had not M. Puvis de Chavannes led the way. It is a scene *en plein air* in a garden by the river side, with a bridge on the right (probably local scenery) and groups of learned men in more or less academic garments scattered about it, balanced or contrasted by other groups of women and children, leaving however plenty of open space between the figures. It is a picture in a flat fresco-like style, and in that sense decorative, but (like that of Puvis de Chavannes) deficient in warmth of colour for a really decorative work. M. Béraud, who astonished us last year by a painting of Christ in a Parisian club-room, has repeated the same kind of idea this year in a picture of the Descent from the Cross, the body being taken down reverently by French *ouvriers*, one of whom shakes his fist at the wicked city below him which evidently takes the place of Jerusalem in the tragic drama: a Parisian lady kneels and clasps her hands with an expression of agony and contrition at the sight of the dead body. To say the truth, though we thought last year's picture striking in spite of its extraordinary combination of real and ideal, we doubt the wisdom in any sense, artistic or otherwise, of repeating the idea, and it very narrowly escapes the borders of bad taste, some would say irreverence. "Les Nautes Parisiens à l'Epoque Gallo-Romaine," by M. Delance, is another decorative painting intended for the Salle d'Audience of the Tribunal de Commerce, representing the ancient Paris quay and the unloading of a galley, but the painter does not succeed in giving reality to the scene or rendering it very interesting.

One of the most prominent and clever pictures in the New Salon is an interior with four life-size figures, by an American lady, Miss Lee-Robbins, under the title "Five o'Clock;" probably it is really a set of portraits, under which category it is defensible; as a mere *genre* picture it is far too large for the subject. Mr. Sargent's "Carmencita" is here, looking even more brilliant and powerful than it did at the Academy, as it is in a better light. Mr. Whistler is pretty largely represented. M. Lhermitte has followed the lead of M. Béraud by introducing a figure of Christ seated at table in a workman's cabaret, under the title "L'Ami des Humbles," a fine picture, but this use of a sacred figure to produce what may be called a cheap sensationalism is much to be deprecated, and it is to be hoped we shall see no more of it. Among other things to be specially noted are M. Dagnan-Bouveret's portrait of a lady in white; M. Damoye's large landscape, "Un Marais"; M. Edelfeldt's portrait of Prince Charles of Sweden; Miss Foss's "Ouvrière Fleuriste," an interior with a life-size figure (the artist is an American); M. Gandara's "Entre la Coupe et les Lèvres"; M. Karbowski's "L'Anniversaire," a cemetery scene of decking a tomb, with many figures, intended as a decorative painting for the Mairie of Nogent-sur-Maine; M. Mathey's "Portrait de Mdlle. M——"; M. Parrot's "Baigneuse," a figure seated on the bank of a stream in full sunlight; and M. Rondel's "Portrait de Madame H. R——."

The attempt to keep up two Salons is more and more obviously a mistake; there are sufficient important works in the two to make a splendid collection if they were kept together, and the average level of both exhibitions suffers by the division. On the other hand the New Salon contains many very charming small landscapes which would be crushed under the numbers and inferior lighting of the Champs Elysées exhibition; and the real part for the New Salon, with its admirably lighted rooms, to take, would be to restrict the wall space and make it an exhibition of cabinet pictures, such as would not be seen to advantage in the larger Salon. It would have a *raison d'être* then; it has none now, as it can hardly be said to represent any special tendencies.

Sculpture is but poorly represented at the Champ de Mars, and architecture practically not at all; the old Salon completely holds its place in these two departments. The two most noticable facts about the sculpture exhibition at the old Salon are that M. Falguière does not exhibit, and that M. Gerôme appears as a sculptor, with two curious and very highly-finished works, neither of which however can be called satisfactory. One is "Billone" (Bellona), a figure with the flesh parts in ivory and the armour and draperies in bronze; the figure has her mouth wide open as if screaming, a cobra reared at her side repeats the action; the thing is sensational and un-sculpturesque. M. Gerôme's other work is Pygmalion and Galatea, at the moment when the statue comes to life; still standing on the block on which she has been modelled, she turns to kiss the sculptor, who, clad in a working tunic, stretches up to her embrace; the marble of the female figure has been tinted slightly, and the hair nearly realistically tinted, but this is not overdone; the decorative effect is very good; the failure of the work is that, while splendidly modelled, it is utterly deficient in beauty and sentiment, Galatea being a very ordinary female model; the poetry of the legend has been entirely lost, and we see only an atelier study. Of the sculpture generally it may be said that it is not up to the highest level for the Salon, though there are many works which would give the artist a first-rate place in the Royal Academy sculpture-room. The central work is the half-size model by M. Peynot for his great monument "À la Gloire de la République" for the town of Lyons; a fountain with a column in the centre, with groups of figures planted against it on three faces, a fountain basin below with figures of Neptune and Amphitrite, and the female figure representing the Republic seated on the prow of a ship above. The half-size model gives the figures life-size or rather more. This is a grand work and very finely composed in a decorative sense. The same sculptor exhibits marble groups of the "Four Quarters of the Globe" for the château of Vaux-le-Vicomte, also a very fine and serious work. M. Mercié has a beautiful figure of "Le Regret," a heavily-draped female figure leaning on a tomb and placing flowers on it; apparently a monument; the treatment of the drapery and the indication of the pose of the figure within it are in the highest style of sculpture. M. Marqueste exhibits a spirited group of a centaur and a female figure under the title "Nessus," but the subject is rather grotesque from the point of view of the present day. M. Frémiet exhibits a fine alto-relief equestrian statue of the Constable Oliver of Clisson. An American sculptor, Mr. French, exhibits a fine bronze alto-relief, "L'Ange de la Mort et le Sculpteur," the figure of Death, heavily draped and with part of the drapery forming a kind of hood and throwing the head into shadow, arrests the sculptor in the midst of his work: it is intended as a monument for the tomb of a sculptor. M. Lombard has a finely-composed group of Samson and Delilah, and M. Hugues a powerful work entitled "Victoire;" a warrior who has conquered but is fainting from his wounds, supported by a companion. This is an illustration of the quality of original thought and conception which gives so much interest to a collection of French sculpture. There are a good many works, no doubt, which are simply finely-modelled figures, but there is a considerable proportion of subjects which show original thought either in the idea or the treament. M. Charron's "Sommeil de l'enfance" is one of these, an infant sleeping with a finely-modelled and draped figure of an angel playing a violin beside him, in illustration of the lines:—

> "Il dort paisiblement; sur le viole d'or
> Son ange interprétant l'harmonie éternelle
> Enchante son sommeil, l'abrite de son aile:"

here the sculpture is a poem in itself: so also is the late M. Christophe's figure of the man clutched in the embrace of the Sphinx,—

> "Dans l'eclair d'un baiser qui vaut l'eternité."

This is a marble group of which, if we remember right, the plaster model was exhibited in a previous year. M. Rougelet's "Hero and Leander," again, is no mere group of figures, it is remarkable for the intensity of expression in the faces, which yet does not transgress the conditions of sculptural art. M. Chevalliaud's "Génie de la Liberte," a bronze male figure *adossé* on a pillar or stele, is a spirited work, intended for a commemorative monument of the "Federation Brétonne et Angevine de 1790"; the architectural portion is designed by MM. Deperthe, the architects. The French sculptors set ours a good example in this respect, in almost invariably going to an architect for the design of the subsidiary details; nor is the architect's name and his share in the work ever overlooked.

DISCOVERY OF AN AZTEC CITY.—A party of Mexican labourers, while digging in the extension of the Santa Cruz Canal, Arizona, came upon what is believed to be an old Aztec city. They struck the first ruin in cutting through the desert about 20 ft. below the surface, where it had doubtless been covered up by sandstorms. Everything about the old building had been wonderfully preserved, owing to the alkali in the sand. The first building disclosed consisted of a triangular structure about 300 ft. in length and 200 ft. in width. The roof had caved in, but the wooden pieces by which it was held together were sound. They were pulled out of the old wall, and are on exhibition at Tucson. In the building was a stone trough in sections, held together with cement. There were eighteen bodies in the building, all of them of medium size, and their flesh was mummified. — *Anglo-American Times.*

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS:

THE ART OF INTERNAL ILLUMINATION OF BUILDINGS BY ELECTRICITY.

AT the ordinary general meeting of this Institute on Monday evening last, the minutes of the previous meeting having been read and confirmed,

The President (Mr. J. Macvicar Anderson) said that happily there was no preliminary business to stand in the way of the subject which was to come before the meeting and occupy their attention that evening. That subject was one of great interest not only to the public but to the architectural profession. That meeting had been arranged for by the Science Standing Committee, and he would ask Mr. Lewis Angell, the Chairman of the Committee, to say a few words by way of introducing the lecturer.

Mr. Lewis Angell said that as Chairman of the Science Standing Committee he had very much pleasure in introducing Mr. Preece to the meeting,—not that Mr. Preece needed any introduction. Notwithstanding his many engagements, he had been good enough, at the request of the Committee, to prepare a paper for their instruction. Of course the reputation of Mr. Preece as a scientist and as a specialist in electricity was well-known to them all. Electric lighting was at present making such rapid strides, and there was so much demand for it, that the Science Committee felt that the Institute should, as far as possible, be kept abreast of the subject. It was not desired that the discussion should run very much into the scientific and mechanical details connected with the generation and distribution of electricity, but rather that it should be directed to the artistic aspect of the question, so that the members might learn what was the most elegant and useful way of using the electric light in order to get good effects without paining the eye or offending the taste by violent contrasts, garish blazes, and deep shadows,—defects which had been only too apparent in many installations. It was desirable that architects should get out of the hands of the mere workman and gas-fitter, who had, as a rule, very little appreciation of the delicacies of light and shade and of the decorative harmonies. There was one practical point, however, to which architects must give their serious attention, and that was the steps to be taken to avoid danger in the use of the electric light. As an aid to their study of the question, Mr. Preece had been kind enough to provide the Science Committee with a working specification, which would, no doubt, be printed as an appendix to his paper.

Mr. W. H. Preece, F.R.S., Electrician to the Post Office, who was very heartily received by the meeting, then read his paper "On the Art of Internal Illumination of Buildings by Electricity." The following is an abstract of the paper:—

The art of internal illumination of buildings, the author considers, is just born, and will be an art in the future. Electricity is rendering theatres bearable and houses healthier, while the architect is brought face to face with a new art, in which the aid of the electrician is required to solve some of the difficulties. History is silent as to the origin of tallow, pitch, wax, and oil, but gas as an illuminant came in with the present century. From the earliest days history, whether culled from paintings or writings, teaches that lights have been dim and crude until the middle of the present century. Light, by whatever means generated, follows the same laws, and is due to the rapid rhythmic undulations of the medium called ether that fills all space. Wherever there is light there is heat, and the hope of the philosopher to supply light without any heat at all is at present but a dream. Light cannot be produced without heat, and the higher the temperature the brighter the light. Colour varies with the rate of vibration of the ether, while changes of colour are due to the changes of wave-motion of the ether. Light may become so intense that all sense of colour is lost, and very bright illumination causes all colours to appear whitish. If light emanates from a point, its intensity diminishes with the square of the distance. The candle is the British standard source of light, and the bright surface produced by it at a distance of 1 ft. the standard illumination by which to measure the amount of light distributed by any other means. This standard Mr. Preece calls a "lux." The great problem is to diffuse light throughout a room so that it be distributed uniformly over the working surfaces with an intensity of a lux. Sixteen-candle glow lamps suspended 8 ft. above the floor and fixed in 8 ft. squares, effect this very well; and groups of four such lamps fixed 16 ft. high produce a similar result. The light a lamp gives is owing to the expenditure of energy in its carbon filament; an electric current is driven through this filament by electric pressure, its resistance is overcome, it is intensely heated by the proceeding, and the result is pure unadulterated light. The energy expended per second by an *ampere* (the standard current), driven by a *volt* (the standard pressure), is called a *watt*. A sixteen-candle glow lamp takes sixty-four watts, which, assuming the lamps to be fixed 8 ft. high, means that one watt per square foot of surface is required to secure ample illumination from lamps so fixed. Therefore, in designing the normal illumination of rooms, Mr. Preece takes the floor area in square feet and divides it by sixty-four, which gives the number of sixteen-candle power lamps required, fixed 8 ft. high,—these being increased or diminished according to the purposes of the room, its form and height, &c. The adaptability of the eye to nearly every degree of light is very great, and it is almost impossible for it to judge accurately of the amount of light present; but it is not as a mere source of light that the glow lamp is superior to the gas-burner. The former can be put anywhere, and used without the adventitious aid of match or fire. It does not vitiate nor unnecessarily warm the air, and it simplifies the problem of ventilation, while it lends itself above all to the æsthetic harmony of furniture and decorations. Electric light is not always absolutely safe; security is to be obtained only by good design, perfect materials, first-class workmanship, and rigid inspection. Imperfect materials erected by cheap contractors lead to many disasters; on the other hand, it is stated no fire has occurred in buildings fitted up under the rules and regulations, and inspected by the officers, of the insurance companies in this country. Mr. Preece advocates keeping everything as much as possible in view, and not hiding the conductors under wainscots or floors or above ceilings. The glow lamp excited by three watts per candle is at present the most perfect source of domestic light, and when the patent expires,—in a year or two,—will be obtainable at one-third the present price. It is scarcely fair, Mr. Preece thinks, to say all light should come from the side of a room, as Lord Beaconsfield stated in "Lothair" when describing the lighting of Belmont. The House of Commons is one of the best-lighted chambers in London, and is lighted from the roof, a false glass ceiling excluding the heat and glare, and admitting only the light. What is wanted is to avoid the glare of the incandescent filament in the eyes, and to prevent the lamp from being too obtrusive; it can be shaded from the eye without its effectiveness being destroyed, and without the flow of light being obstructed or its quality being deteriorated. Judging from the Crystal Palace Exhibition, at which several leading firms have not exhibited, the electric light fitter has not seized upon the spirit of the age,—which is the rule of science over mere conventional æstheticism. Two exhibits at the Crystal Palace, however, especially deserve, the author considers, inspection. The one is a Tudor ribbed ceiling erected by Messrs. Allen & Mannooch, who have applied glow lamps to the moulded intersecting pendants in such a way that the feeling of the artist is maintained by day, and is rather intensified, and not marred, by the artificial illuminant at night. The other is a bold attempt of Messrs. Rashleigh, Phipps, & Dawson to design in ironwork the whole of the fittings of a dining-room, so that they shall, in combination, convey an idea. The artist (Mr. Reynolds) has attempted to symbolise the solar system, the centre light over the table representing the sun, and the brackets on the walls the planets. A survey of the Royal Academy pictures, the author thinks, affords instructive study. There are many interiors, but few into which artificial light has been introduced. Having described several pictures in which artificial light has been introduced with more or less successful results, Mr. Preece, in conclusion, said he considers that Science is advancing with giant strides. Science has subdued nature so as to bring it within the compass of the human intellect, and Art must follow the knowledge thus acquired. These two being the chief instruments of modern civilisation, the architect and engineer must work hand in hand.

Mr. John Slater, in proposing a vote of thanks to Mr. Preece for his paper, said it was exactly ten years ago since the Institute meeting-room was first lighted by electricity, but not without many difficulties in the regulation of the intensity of the current,—difficulties which had been overcome by the invention of the Sellon-Volckmar storage cells or batteries. Science, as Mr. Preece had said, had made great strides during the past ten years, but he (the speaker) was inclined to agree with him in thinking that no very great advance had been made in the way of artistic illumination by electricity. It was true that the theatres had had an entirely new world of possibilities opened to them, and that by the use of electric lamps in all sorts of positions they were able to get effects which would never have been dreamt of twenty years ago. Referring to the present Crystal Palace Exhibition, he thought there were some things there which were absolutely wrong. For example, there were candelabra with imitation candles, having incandescent lamps at the tops; this was a striking exemplification of the length of absurdity to which some people would go in their adhesion to old and past customs and ways. No doubt everyone who had seen the interior of the House of Commons at night would agree that it was a most admirably lighted interior; but then the lights which actually lighted that chamber were all hidden behind the ground-glass ceiling, so that none of the glare from the lights reached the eye, and the light was perfectly diffused. That seemed to him to be the sort of thing in the way of artificial illumination that should be generally aimed at, whether in public or private rooms. But he could not understand why Mr. Preece should praise the lighting of the House of Commons, and at the same time condemn, as he had done, the use of ground-glass incandescent lamps. He (Mr. Slater) thought that unless we used low-power lamps, which were not economical, we were bound, in some way or other, to screen off the direct glare of the filament of heated carbon. If Mr. Preece could tell them how the glare could be avoided without any diminution of the effectiveness of the light, they would all be very much obliged to him. Mr. Preece had alluded to the attempts which had been made, at the Crystal Palace and elsewhere, to accentuate the architectural forms of a ceiling by having incandescent lamps placed at the junction of the mouldings, or in little hollows. That undoubtedly was an exceedingly effective means of illumination, but it could not be denied that it was also, to a certain extent, a very extravagant method of lighting, because the reflectiveness of the ceiling was altogether lost. In conclusion, Mr. Slater said that he thought the Science Committee, in conjunction with Mr. Preece, were deserving of the best thanks of the meeting for having given them such an extremely artistic evening.

Mr. Henry Dawson seconded the vote of thanks, said that Mr. Preece was eminently deserving of their thanks for the very valuable and practical paper which he had given to them. He was glad to hear him emphasise the necessity of having good work, properly supervised, if danger from fire were to be avoided; and he thought it was a matter for congratulation that electricity could not be adulterated, and that the use of electric lighting would promote health and cleanliness by saving the air of our rooms from becoming over-heated and vitiated.

Mr. Sidney Vacher said that the discussion seemed to have a tendency to become limited to such details as the relative advantages of ground and unground glass. He should like to see the question discussed on a broader basis. How, for instance, would they light the Church of Sta. Sophia at Constantinople?

Mr. T. Tayler Smith said he thought that the subject had been introduced at a very fitting time, because we were now acquainted with the technical necessities which were the foundation upon which we might work to produce pure art, truthfulness of design, and consistency of purpose. He thought it was fortunate that they now had in the electric lighting industries a very different set of people to those who were launched out on the introduction of the gas industry. It was lamentable to see hanging over the footways lamps 3 ft., 4 ft., or 5 ft. in diameter shielding three or four fish-tail burners.

Mr. W. Bainbridge Reynolds said that in designing electric-light fittings, the quality of movement or unrigidity which differentiated the electric light from all other methods of lighting was one which should, he thought, be expressed in the design of the fittings, and consequently he thought that the best position for a glow-lamp was vertical and pendent.

Mr. E. Manville, Mr. R. C. Crompton, Mr. Aston Webb and Mr. Joseph Goddard, having spoken, the President put the motion for a vote of thanks, which was carried by acclamation.

Mr. Preece, in reply, said he was much obliged to the meeting for thanking him, but he, in his turn, had to thank the audience for listening to him so attentively. He was rather sorry that his paper had not been more fully criticised, for there had been very little criticism indeed of any consequence, if he excepted that of the gentleman who complained that the subject had not been dealt with on a sufficiently broad basis, and who wanted to know how they would light the Mosque of Sta. Sophia at Constantinople? He was reminded, by that remark, of Mr. Dick, in "David Copperfield." Mr. Dick lived in a small room near Charing-cross, with which he was very well satisfied. Somebody, alluding to the smallness of the apartment, told him that "there wasn't room to swing a cat there," to which Mr. Dick replied, "I don't want to swing a cat." Neither did English architects want to consider, at present, how to light up Sta. Sophia; they had to consider how best to light their own English interiors. Mr. Slater had twitted him with the fact that while he had objected so strongly to ground glass as an obstruction to light, he spoke approvingly of the lighting of the House of Commons, which was entirely through ground glass. It was quite true that the House of Commons was admirably lighted, the light being well diffused and distributed. But then Mr. Slater had probably never seen the gas-bill: he (Mr. Preece) *had*, and he knew how large it was and what a serious waste it represented. There was quite six times as much energy wasted in lighting the House of Commons than was really necessary. But people did not want to have the light directly in their eyes, and the problem to be solved was, how to avoid that in an interior which was to be lighted effectively and without glare, and, at the same time, with some regard to cost. He was not an advocate for ceiling lighting, except when the lights could not be put anywhere else. What was wanted was that the lights should be so disposed or arranged that they should fairly distribute the light in every direction. In conclusion, Mr. Preece referred to a number of the things exhibited in illustration of his paper, and said a few words as to the electric lighting of the Institute meeting-room, which, he said, was not as efficiently lighted as it might be.

On the motion of the President, a vote of thanks was accorded to the several firms who sent exhibits to the meeting, viz., Messrs. Benham & Froud; Messrs. Faraday & Son; Messrs. Walter Glover & Co.; Messrs. Laing, Wharton, and Down; Messrs. Strode & Co.; The Planet Electrical Engineering Co.; and the Tayler-Smith Electric Co.

The meeting terminated with the announcement that the next meeting of the Institute for the present session will be held on Monday, May 30, when papers will be read on "Castings in Metal," &c. This meeting has been arranged for by the Art Standing Committee.

THE NOTTINGHAM SEWAGE FARM.

DURING the recent Midland Counties District Meeting at Nottingham of the Incorporated Association of Municipal and County Engineers, a visit was paid to the Borough Sewage Farm at Stoke Bardolph, as we mentioned. The following description of the farm has been kindly furnished to us by Mr. Arthur Brown, M.Inst.C.E., the Borough Engineer:—

The question of utilising the sewage of the borough, and thus preventing the pollution of the river Trent, was forced upon the Corporation as early as the year 1870. The riparian owners naturally objected to the sewage of the town of Nottingham being passed direct into the river, and threatened the Corporation with an injunction to restrain them from further polluting the river Trent. The Corporation, recognising the absolute necessity for an improvement being made in the condition of the river, immediately set to work to obtain the necessary powers to enable them to commence operations. At this time, which was previous to the extension of the borough in 1877, the town of Nottingham was encircled by other outlying parishes, the sewage from which either delivered into the river Trent or into the river Leen, a tributary of the Trent. Parliamentary powers were obtained, and a joint Sewerage Board was formed, which consisted of members from the Town Council of Nottingham and from the various Local Boards of the parishes referred to.

The first step was to construct an intercepting sewer to pick up the sewage from the various districts; this was done about the year 1873.

The joint Sewerage Board had in the meantime thoroughly discussed the question of methods of purification, and, after visiting the principal towns in England, decided to adopt that of broad irrigation and downward filtration on land. For this purpose land to the extent of about 640 acres was leased at what was known as Stoke fields, about five miles from Nottingham. The rent asked for the land was at the rate of 5*l.* per acre for a sixty years' lease, and it was found impossible to obtain the land for less than this rent, although a large portion of it was then only let at from 30s. to 35s. per acre. The rent is certainly very heavy, but the Corporation have the small consolation of knowing that they are not treated any worse than other towns when they have to buy or lease land for a similar purpose.

The dry weather flow of sewage is about 6,125,000 gallons per day of twenty-four hours. Of this quantity, 2,125,000 gallons flow down by gravitation; the remainder, however, has to be pumped. The length of the outfall sewer (from the point where the gravitation and pumping mains meet) down to the farm is about four miles, and the sewer is constructed of various shapes to suit the exigencies of the case; where it is in tunnel the sewer is a 5 ft. barrel sewer; where it passes through low-lying meadow lands it is 7 ft. wide by about 4 ft. high, with a flat top of York landings. For a length of 1,000 ft. through meadow lands the sewage is carried through iron syphons in duplicate, each 42 in. in diameter, and 1,000 ft. long. The ruling gradient of this outfall sewer is about 2 ft. per mile, and the discharging capacity is about 25 million gallons per day, so that ample provision has been made for the growth of the town.

The farm, as at present laid out,* has an area of 640 acres. An additional area of 269 acres has just been purchased from Earl Manvers, in order to provide additional land for farming purposes; this land is now being under-drained and laid out by the Borough Engineer, and will shortly be ready to receive sewage. The land is eminently suitable for irrigation, and is a natural filter which cannot be surpassed. There are on the top from 9 in. to 12 in. of light arenaceous soil; then about 1 ft. 6 in. to 2 ft. of fine sand, with very fine gravel; then 1 ft. 6 in. of fine gravel; then 12 in. of fine sand and lastly comes a bed of river gravel, varying from fine to coarse. The land being meadow land, near the river Trent, was fairly level, but still a considerable sum of money had to be spent on levelling the surface, uprooting hedges, and generally preparing the ground to receive the sewage.

Of the total acreage of 640 acres, about 130 acres were laid out as a filtration area, which was divided into plots, and upon which the sewage is delivered in turn in winter time, at night, and at other times and seasons when there is an overplus of sewage to be dealt with. This area is deep-drained, and has main drains of from 9 in. to 12 in. diameter, laid about 6 ft. deep, and being about two chains apart; the "feeders," laid "herring-bone" fashion, are of 4-in. agricultural pipes, and on this area are 10 ft. apart. The main drains on the remainder of the farm are laid four chains apart, and the "feeders" 20 ft. apart. For the drainage of the 640 acres of land, about 400 miles of pipes of various sizes were laid.

The carriers for delivering the sewage on to the land are laid at such a level as to command all the land on the farm, and at numerous points in the side of these carriers are wooden sluices, which, when opened, allow the sewage to be delivered on to the land. The carriers are formed of earthwork lined with Portland cement concrete about 6 in. thick; they have stood remarkably well, and are in as good a condition now as they were when first constructed twelve years ago. The concrete was composed of cement and gravel, the latter being found on the ground. The distributing channels, which are opened by the plough, are formed on the crown of a very slight ridge, and these convey the sewage from the carriers over the land.

About 340 acres of the farm consist of ordinary arable land, 140 acres are permanent pasture, and 30 acres are occupied by the homestead, &c. Italian rye-grass occupies about 70 acres, and, in suitable weather, is cut about every six or seven weeks. Some of the rye-grass is made into silage, and is much relished by the cattle.

It was very soon realised by the Corporation that it was exceedingly difficult, and practically impossible, to sell the produce grown upon the farm, and acting upon the advice of their excellent farm bailiff, Mr. James Avis, they decided to keep and rear a large stock of cattle, so that the bulk of the produce should be eaten on the farm. Experience has shown that this is the only way to make sewage farming a success. Profitable it can never be, but this method reduces the loss to a minimum.

The stock of cattle on the farm at the present time is:—Beasts, 340; sheep, 300; pigs, 80; farm horses, 35; and young horses, 20. Of the beasts, about 90 or 100 are milch cows, nearly the whole of the milk from which is sent to London.

The land takes the sewage well, and the effluent could not be better. No difficulty has been experienced in dealing with the sewage during the severe winters of the past three years, and there is not the slightest sign of the land becoming clogged.

Although the sewage farm has been in operation for twelve years, not a single complaint has ever been made of any nuisance arising from the operations of utilising the sewage on the land. The neighbouring village of Burton Joyce closely adjoins the farm, and owners of property there have evidently confidence in the farm being carried on without any nuisance, as they are building villa residences within a stone's-throw of the farm.

* Under the direction of the then Borough Engineer, the late Mr. M. O. Tarbotton.

THE ARCHITECTURAL ASSOCIATION'S SPRING VISITS:

THE NEW NATIONAL PORTRAIT GALLERY.

THE seventh visit of this season was made on Saturday afternoon last to the New National Portrait Gallery, now being erected from the designs of Mr. Ewan Christian. Owing to ill-health and consequent absence at Eastbourne, Mr. Ewan Christian was unable to be present, but Mr. Henry Christian kindly met the members of the Association, and explained the design of the Gallery very fully to them, and afterwards conducted the party over the building.

The design of the National Gallery has been preserved with great care in the new east front, but, owing to the great difference in levels, it was found impossible to continue that design further than the staircase block of the New Portrait Gallery, which is from that portion entirely different in style and treatment from the other part. This variation was also found desirable, inasmuch as the windows of the National Gallery would be far too small for the purpose for which the Portrait Gallery has been designed, and the arrangement in floors necessitated larger windows for giving the only light available. The basement is devoted to lavatories, stores, engine-rooms, and engineer's apartments, and large galleries, which, even in this position, are well lighted. The long narrow gallery to the left of the main staircase is to be devoted to sculpture. This staircase gives access to all the galleries in the main block intended for the exhibition of portraits, which are arranged on both sides of a wide corridor, lighted at each end.

The entire building is as nearly fireproof as a building can be made, even to the roofs of the large galleries on the top floor, which are of iron and concrete. The building is heated by hot air conducted by very large flues over the entire building, so designed as to be under the complete control of the engineer and attendants. After the members had carefully inspected the works under Mr. Henry Christian's guidance, a cordial vote of thanks was accorded to him for his kindness in attending.

Illustrations.

SHEFFIELD MUNICIPAL BUILDINGS:

GRAND STAIRCASE AND TWO EXTERIOR VIEWS.

THESE three drawings in illustration of the Sheffield Municipal Buildings, showing the grand staircase and the two long sides of the building, are all hung in the architectural room of the Royal Academy, and were mentioned in our notes on architecture at the Royal Academy. As to the building generally sufficient information has from time to time been given in our columns, which it would be superfluous to repeat here.

The view of the staircase represents only the general scheme, the details have hardly been matured as yet (so Mr. Mountford informs us) and may be considerably modified. The walls are intended to be lined with polished Hopton Wood stone below, the arches being of Mansfield stone; the steps of Sicilian marble, the balusters of alabaster, their bases and capping of red marble. Everything in the building is to be English, except this said Sicilian marble. The columns will mostly be of red Devonshire marble.

It may be noted that the statue of Vulcan for the summit of the tower, and that of the Queen for the principal entrance, are now nearly completed by Signor Raggi.

MUSIC ROOM, "HIGHLANDS."

THIS room has been designed as an addition to "Highlands," Putney-heath, for Dr. Longstaff.

Its size is 48 ft. by 22 ft., with an ingle nook at one end, and recessed alcove with second fireplace at the other, and a recessed bay with a music-gallery over. The mantelpiece is of Weldon stone and polyphant, by Mr. Hitch, of Kennington.

The floor has been specially constructed for dancing purposes. Evans & Swain's patent fireproof construction has been adopted throughout.

Over the room are billiard-room and smoking-room.

The work was executed by Messrs. Turtle & Appleton, of Wandsworth, from the designs of Mr. W. D. Caröe.

THE ARCHITECTURAL ASSOCIATION:

NOMINATION OF COMMITTEEMEN.

THE ordinary fortnightly meeting of this Association was held on the 13th inst., in the meeting-room of the Royal Institute of British Architects, Mr. F. T. Baggallay, President, in the chair.

The minutes of the previous meeting having been read and confirmed, Mr. E. S. Gale, honorary secretary, read a list of members nominated for election, and he also announced a list of donations to the general fund, amounting in all to 100*l.* 15s., including 20*l.* from G. T. Hine. He moved a vote of thanks to the donors, which was carried by acclamation, after a few words by the Chairman.

The Chairman said he had a great deal of pleasure in moving a hearty vote of thanks to the members of the A. A. Lyric Club and to the other gentlemen who contributed to the success of the entertainment at the recent *Soirée* of the Association. This was also agreed to by acclamation.

On the motion of Mr. F. T. W. Goldsmith, honorary secretary, votes of thanks were accorded to (1) Mr. Blashill, Architect to the London County Council, for kindly allowing the members to visit the Newington Weights and Measures Offices; (2) to Mr. Keith D. Young, for permitting them to visit the new Royal South London Ophthalmic Hospital; and (3) to Mr Frank Verity, for giving them permission to visit the New Travellers' Club.

The President said he had, with very much regret, to announce, in accordance with By-law 35, that three casual vacancies had occurred on the Committee. They were most of them aware, to a certain extent, through *A.A. Notes*, that the cause of those vacancies was the resignation of Mr. Owen Fleming, Mr. T. E. Pryce, and Mr. Leonard Stokes. The Committee regretted those resignations very much; but without entering any further into the matter at that stage, he would call upon Mr. Pryce to make a personal explanation.

Mr. T. E. Pryce, who was received with loud applause, said he wished to ask the President a series of questions, of which he had given him notice, and he wished to ask those questions before he made his statement.

The President said he thought it would be better if Mr. Pryce made his statement first and asked his questions afterwards.

Mr. Pryce said he should prefer to have the answers to his questions first.

The President: Very well then: ask your questions.

Mr. Pryce said the first question he had to ask was, whether it was not a fact that one of the chief charges made against the staff of *A.A. Notes* was the publication of a letter from Mr. T. G. Jackson, expressing views which were not those of the Committee, and which the Committee could not endorse?

The President: Not altogether.

Mr. Collard rose to order. He said that the meeting had assembled to hear Mr. Ashbee's paper. Was that to be deferred to the end of a long list of questions such as the one which had been asked?

The President said that in accordance with the By-laws they were bound to announce that the vacancies on the Committee had occurred, and it would not be in accordance with custom if they did not allow the gentlemen concerned to make any personal explanations which they wished to make.

Mr. Pryce said his second question was whether it was not alleged as one of the reasons for altering the staff of *A. A. Notes* that it was desirable to bring that publication more under official control than it had hitherto been?

The President: Yes.

Mr. Pryce next asked whether the Committee, having received the resignation of the staff, was responsible for the publication of Mr. Earle's letter in the last number of *A. A. Notes?*

The President said that the acting Editor (Mr. F. R. Farrow) was alone responsible: the Committee and Manager had no knowledge of it. The Committee did not endorse the letter.

Mr. Pryce further asked whether the Committee knew of the prominent position which that letter occupied, and whether the Committee would have approved of the insertion of the letter if they had known of it?

The President, in reply, said that the present Manager had always declined to take a position of censorship over the *Notes*, and he simply occupied the position of Manager *pro tem.*, in the same sense as there was a publisher to a journal. The intention was to afford some control over the *Notes* by the future President, who had not yet come into office. The acting Editor, in fact, took the sole responsibility for the insertion of Mr. Earle's letter.

Mr. Pryce said he regretted that he had to make a somewhat disagreeable statement. The members were aware, from certain statements which had appeared in *A.A. Notes* and other journals, that a certain meeting took place some time ago at Mr. Stokes's rooms. With the calling of that meeting he had nothing whatever to do. The meeting was called for the express purpose of doing good to the Association, and the members who attended that meeting included, besides himself, Mr. Cresswell, Mr. Gale, Mr. Brodie, Mr. Millard, Mr. Fleming, Mr. Stokes, and Mr F. M. Simpson. There were other gentlemen present, some of whom had been heard in that room. There were Mr. Jackson, Mr. Blomfield, Mr. Macartney, Mr. Prior, and Mr. Warren. Now he (Mr. Pryce) thought those who knew him well would not say that he was a "Memorialist" in the slightest sense, for he disapproved very strongly of the course which the "Memorialists" had taken in connexion with another body. But those gentlemen were men of very high attainments, and included the late John Sedding, who, he believed, would have been at the meeting in question had he been alive, for his help was always most willingly given when the Association was in need of it. The members of the Association who attended the meeting were all extremely anxious to enlist the services of some of the gentlemen he had named for the benefit of the Association. Would they not all like to have men like Mr. Blomfield, Mr. Jackson, and Mr. Norman Shaw in their Studio, criticising their drawings, and helping them with their great and varied experience? For his own part he thought that any steps that they might have taken to get the assistance of those gentlemen in the work of the Association were deserving of approval and thanks, and that the willingness of the gentlemen in question to help them should not be perverted and misrepresented as an effort on their part to forward their views with regard to another body. He had fully and truly stated the motives by which those who called and attended the meeting were actuated. They met and discussed certain matters, one of which was the question of the alteration of the wording of the preface to the A. A. curriculum. Very little alteration was necessary, but it was at the same time proposed to lighten the ship by omitting one or two subjects. The propositions of that meeting were brought before the Committee of the Association, perhaps not in the best possible way. The Committee rejected the main proposition, but with regard to the others, he did not think they had any strong feeling. In the meantime, certain letters appeared in *A.A. Notes* and in the *Builder*. Mr. Cole Adams in particular wrote to the *Builder*. He (Mr. Pryce) thought it was rather foolish to discuss such questions in the public prints, and for his own part he had refrained from joining in the correspondence. Those letters had undoubtedly exercised a certain amount of influence. Then followed the action of the Committee directed against *A.A. Notes* for the publication of Mr. Jackson's letter. A resolution was passed calling for the resignation of one of the Editors of that publication, and it was plainly hinted which of the Editors was required to resign. Another resolution was passed nominating Mr. Farrow to act in his place. Now there was no doubt that the Committee had acted distinctly within its rights, but the question was how far the exercise of those rights was for the good of the Association. He believed that the Committee had adopted a line of policy which would be detrimental to the Association's interests. The Committee were, of course, for the time being, absolute masters of the Association; but he thought it behoved them to take carefully into consideration any such violent course as they had recently pursued. He thought it was pretty clearly explained to the Committee that the staff of *A.A. Notes* would be likely to stand together; but that did not have any effect on the judgment of the Committee, whose action had the appearance of a desire to absolutely bind them to any policy which might be promulgated by the Institute. ("No, no!") Well, that was a matter of opinion. No one would say that he was an anti-Institute man, but at the same time he was bound to say that he did not want to see the Association made simply a feeding ground for the Institute or any other society. He extremely regretted the action of the Committee, because he felt that it would keep the distinguished gentlemen whom he had named out of touch with the Association, and prevent them from helping them in any way. These were the chief reasons which caused him to send in his resignation as a member of the Committee, and he earnestly begged the members to consider the matter carefully before they endorsed the action which had been taken by the majority of the Committee.

Mr. Woodthorpe: But the proposal was to cut out the word "Institute" from the "Brown Book" altogether.

Mr. Pryce, continuing, said he need not enter more into detail, but would only say that the action of the majority of the Committee, if endorsed, would keep away from the services of the Association eminent men like Mr. Jackson, Mr. Blomfield, Mr. Macartney, and others. The question was whether they might not be able to see their way to comprehend everybody,—to be catholic in the true sense of the word, and to continue their work for the profession at large and not in the interests of the policy of any one society. Those who convened the meeting wanted the Association to represent all shades of opinion in the profession, and for that reason they had gone out of their way to attempt to get the active co-operation of the eminent men whose names had been mentioned. The majority of the Committee had not backed them up in that laudable effort, and he regretted it very much.

Mr. Farrow said that Mr. Pryce had raised two points, the first by his questions, and the second by his explanation of the reason of his resignation. His questions had been directed practically against the last number of *A.A.*

Notes, for which, as the President had said, he (Mr. Farrow) was wholly responsible. He should like to ask Mr. Pryce, as a past Editor of *A.A. Notes*, whether it was not a fact that during his editorship of that publication he had never refused to insert any letter sent to him by a member of the Association, except on one occasion when he requested the writer to lay the matter before the Committee?

Mr. Pryce said he was not finding fault with the insertion of Mr. Earle's letter so much as with the way in which it was inserted. One of the great grievances of the Committee against the late Editors of *A.A. Notes* was that they inserted a letter from a prominent man whose views were not in accordance with their own, and that was the reason why a change in the editorial staff was insisted upon. Now, the Committee having changed the staff because Mr. Jackson's letter was inserted, the result was the insertion of a letter fifty times more improper, and in a much more prominent position. He alluded to Mr. Earle's letter, which was inserted in the form of a leaflet.

Mr. Farrow said he would ask whether, if an Editor of *A.A. Notes* received a letter from a member of the Association, he was not bound to publish it if he could possibly do so?

Mr. Pryce said he would not go out of his way to publish it as a leaflet.

Mr. Slater rose to order. He wished to know whether the question before the meeting was that of the rival views of Mr. Farrow and Mr. Pryce as to the management of *A.A. Notes*?

The President said he thought that they must allow the explanations to proceed.

Mr. Farrow said that Mr. Earle's letter was an electioneering letter. Mr. Earle was on the "House List" for election as a member of the Committee, and he (Mr. Farrow) would have considered it a gross breach of duty on his part, as acting Editor of *A.A. Notes*, if he had suppressed a letter from a member on the eve of an election. The letter was sent as an electioneering letter with a view of influencing the election, and therefore he felt that he must insert it. He was quite willing to justify his action in that respect before any meeting of the Association. The other point which Mr. Pryce had raised was in his explanation why he had resigned his seat on the Committee. He had told them that he resigned because the action of the Committee had lost them the services of Mr. Jackson and other eminent men who might have been willing to assist the Association in its educational work.

Mr. Pryce: That is one of the details of it; it is not everything.

Mr. Farrow, continuing, said Mr. Pryce had not told the meeting upon what terms the assistance of Mr. Jackson and his friends was to be obtained. It was all very well for Mr. Pryce to say that they should have the assistance of Mr. Jackson and his friends; every one was agreed upon the desirability of securing the help of Mr. Jackson, Mr. Norman Shaw, and other gentlemen, but they were not all agreed upon the price which they were asked to pay for that assistance. What that price was, was clearly indicated in Mr. Jackson's letter inserted in *A.A. Notes*. His terms were, in effect, "Cut away from the Institute, and we will help you." It was true that in a subsequent letter, addressed to Mr. Stokes and printed in the *Builder*, Mr. Jackson had tried to explain away the offensive terms of his first letter. The Committee's view of the situation was very clearly indicated in their statement which appeared in the current number of *A.A. Notes*. The Association refused to bind itself either to the Institute, to the Academy, or to any other body, but sought to maintain a position of independence. The position which Mr. Jackson would have them take up was not an independent one. Mr. Jackson wished them to adhere to his views, one of which was that the members of the Association must not go in for the Institute Examination.

Mr. Pryce: Distinctly not.

Mr. Farrow: Well, the members had all had *A.A. Notes*, and they could read Mr. Jackson's letter for themselves. As to the request made by the Committee that one of the Editors should resign, Mr. Pryce had not told the meeting that that was not the first occasion on which objection had been taken on the Committee to the way in which *A. A. Notes* had been conducted. It was true that the Committee had previously passed no resolution upon the subject, the resolutions proposed by members of the Committee having been withdrawn out of courtesy to the Editors, but on the understanding that some heed would be paid to the expressed desire that *A.A. Notes* should be conducted in the interests of the Association at large. When the Committee recently suggested that one of the Editors should resign, they did not wish to make any invidious distinction, but they thought it desirable that at least one of them should represent a set of opinions not then represented on the editorial staff. He was quite aware that there was a section of members of the Association who were prepared to pay the price which Mr. Jackson asked for the help of himself and his friends, but he ventured to think that the members of the Association, as a whole, were not prepared to pay that price; and therefore the Committee did not think that *A.A. Notes* should be carried on merely as an exponent of one side of the question. Mr. Pryce had remarked that he did not wish the Association to be the feeding-ground for any one society. Nor did the Committee; they wanted the Association to be a feeding-ground for all societies, including the Academy, if the Academy would only help them, and would give them some little credit for the work which they did in the Association. Some of them might be aware that there was a petition now in course of signature asking the Academy to reform its Schools, so that they might be made more useful to the architectural student. The present members of the Committee of the Association, if they were re-elected, desired to maintain the Association as an independent body; they did not think that the Association, which had its own proper work to do, should bow down to the Academy or any other society, to Mr. Jackson, or to anybody else. They desired that a free representation of the diverse opinions which existed in the Association should be found in *A.A. Notes*, the journal of the Association, and they desired that the educational work of the Association should be fitted to prepare a man for the Institute Examination if he wished to go in for it, for entering the Academy schools, or for enabling him to pass any other test of his knowledge.

Mr. Leonard Stokes, who was received with loud applause, said it was his desire, if possible, to leave on one side all personal matters. He only wished to say that in retiring from the Committee he was acting up to the best of his lights. He should regret it if he were mistaken, but he had felt it an imperative duty to make some protest against the course which the Committee had taken in these matters. He and some of his friends met Mr. Jackson, as they knew. There were other men behind Mr. Jackson. He (Mr. Stokes) and those members of the Association who met at his rooms were anxious, if possible, to get Mr. Jackson and other gentlemen of eminence to help them in their work at the Association. There had been a great outcry raised to the effect that the independence of the Association would be sacrificed; but, of course, they were not going to take Mr, Jackson's terms if they did not like them. It was the unfortunate discussion of these matters in the newspapers which had raised all that storm about their ears. Now, it was one thing to secure Mr. Jackson's assistance, and it was another thing to buy off his active opposition. He (Mr. Stokes) had authority to tell the meeting that Mr. Jackson and Mr. Norman Shaw had under consideration a scheme of their own which they intended to start, though, as he happened to have heard indirectly, they would much prefer to help the Association, because it would be less trouble to them. The terms which some members had been so frightened about were very simple, and the idea that the Association was to lose all its independence was a mere bogey. All that Mr. Jackson and his friends said was that it was desirable that no reference should be made in the "Brown Book" to the Institute Examination, and they also suggested the omission of certain words in the "Brown Book." They desired to help in the work of giving a thorough training to young architects. But it was stated in the "Brown-book" that it was the object of the Association to obtain a good training for young architects. There was no desire to alter the Curriculum. He did not think that anyone had had much more to do with the Curriculum than he had; but he,—and he believed the Committee itself would acknowledge the fact,—thought the amount of work which had been set for young men to do must be lightened. Mr. Jackson suggested that they should lighten it by omitting such subjects as Chemistry and Geology. Now, if they could see their way to fall in with Mr. Jackson's views, they would secure his help; but, if not, they would lose it and that of Mr. Norman Shaw, who had both said that they would help provided they would simply omit the reference to the Examination. The gentlemen he had named held that the right thing for a young architect to get was a thorough training. Surely the Institute and everybody else would endorse that! The question whether a young man afterwards passed the Examination or not was not very important, provided that he had a good training. Mr. Jackson had said that if the Association provided the training, it was nothing to him if young men did go in for the Examination: let them do what they liked. He (Mr. Stokes) laid it down as a fact that they in the Association established the Curriculum with the only object of providing a sound training for young architects. In that Curriculum, asterisks were put against certain subjects which were necessary to be taken up by those who wished to pass the Institute Examination. But was it necessary that those asterisks should continue to be inserted? The Committee said that it did not want to lean either on the Institute or on the Academy. Mr. Farrow had said that they ought to help young men to get into the Academy, but yet the Committee would not allow a petition to lie in the rooms of the Association asking the Academy to reform its Schools! Surely there could have been no objection to the Academy improving its schools. The Committee were asked to sign in their corporate capacity, but they declined to do so. He demurred to Mr. Farrow's statement that the views of only one party in the Association had been represented in *A.A. Notes;* at any rate, if any members felt that their views had not been put forward therein, it was their own fault, for, as a rule, whatever was sent to the Editors for insertion was inserted. During his term as Editor, he could say that only one article that had been sent for insertion was suppressed, and that was a rabidly anti-Institute article. As to the Committee's statement in *A.A. Notes* that Mr. Jackson demanded that the Association should alter its scheme to suit his (Mr. Jackson's) anti-Examination theories, there was no adequate foundation for it; nor was there any justification whatever for saying that Mr. Jackson desired to convert the Association into the mere tool of the "Memorialists." He thought it was very unfair that the Committee should have made such a statement in the pages of *A.A. Notes*.

Mr. Owen Fleming said that as one who had been on the editorial staff of *A.A. Notes* from the first, he strongly protested against the statement that that publication had been conducted in a one-sided manner.

Mr. F. T. W. Goldsmith said that while he thought it was to be regretted that the incidents which they had been discussing had occurred, he thought it was satisfactory that the meeting should have heard the broad and comprehensive statement which Mr. Stokes had made; and he was sure that they were beginning to see that these differences, which had excited so much ill-feeling on both sides, were, apparently, diminishing in intensity, and things were acquiring a more normal condition than at first seemed likely.

The discussion was continued by Messrs. Brodie, Earle, Beale, A. H. Clark, Dicksee, and others, and eventually the meeting was brought to a close by the re-nomination as members of the Committee of those gentlemen who had been already nominated, but who had, in consequence of the differences discussed, declined to accept the Committee's nomination, viz., Messrs. C. H. Brodie, T. E. Pryce, F. M. Simpson, and L. Stokes. Messrs. Owen Fleming, Gerald Horsley, W. J. N. Millard, E. J. May, and A. W. Cooksey were also nominated as Committeemen, in addition to those nominated in the "house-list."

The discussion of these matters having occupied nearly two hours, the reading of Mr. C. R. Ashbee's paper on "The Relation of the Architect to the Workman" had to be postponed, the President expressing the regrets of the meeting to Mr. Ashbee, who kindly promised to attend and read the paper on a future occasion.

Messrs. Lansdown, Bartlett, Beale, and Rickards having been appointed scrutineers of the voting-papers, the meeting terminated.*

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* Two letters bearing upon the subject of this meeting will be found in another column.—ED.

ARCHITECTURAL SOCIETIES.

NORTHERN ARCHITECTURAL ASSOCIATION STUDENTS' SKETCHING CLUB.—The annual meeting of this Club was held on the 12th inst., at Newcastle. The annual report showed that meetings were held during last summer at Durham Cathedral and Castle, Morpeth Church, Tynemouth Priory, Ovingham Church and Prudhoe Castle, and Chester-le-Street Church and Finchale Abbey. A new series of meetings were arranged, and will start at Seaton Delaval Hall this Saturday, the 21st inst. The Committee were appointed as follows:—Messrs. R. B. Dick, J. W. Twist, J. W. Boyd, and Edmund Rich, Mr. C. G. Errington being re-elected secretary.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.—The annual meeting of this Society took place on Tuesday evening, the 10th inst., at the School of Art, Mr. C. J. Innocent, President, in the chair; and there were also present Messrs. T. J. Flockton, F. Fowler, E. M. Gibbs (Vice-President), W. F. Hemsoll, J. B. Mitchell-Withers, C. Hadfield (Hon. Sec.), and a large number of members. The Secretary's and Treasurer's reports were read and adopted. A ballot took place for the election of President, Officers, and Council for the coming year, Messrs. E. Winder and J. B. Mitchell-Withers, jun., acting as scrutineers. Mr. C. J. Innocent was re-elected President, and Mr. E. M. Gibbs, Vice-President, Mr. C. Hadfield Hon. Sec., and Mr. J. B. Mitchell-Withers Treasurer; and the old Council,—Messrs. E. M. Gibbs, T. J. Flockton, W. H. Lancashire, W. F. Hemsoll, and W. C. Fenton,—were re-elected for the coming session. The Secretary announced, in terms of regret, the recent decease of Messrs. J. McInery and J. F. Wightman, Fellows of the Society. A very interesting and scientific paper on "Timber, its Growth and Characteristics," was read by Mr. W. H. Bidlade, M.A., of Birmingham. The paper was well illustrated by diagrams and specimens of various kinds of wood. The lecturer gave a graphic illustration of the structure and growth of various kinds of timber. He also alluded to the various kinds of damage to which timber was liable when used in building construction from dry and wet rot, and other causes. At the close of the paper an interesting discussion took place, and a hearty vote of thanks was awarded to Mr. Bidlake on the motion of Mr. J. B. Mitchell-Withers, and supported by Messrs. Hadfield, Winder, and H. W. Lockwood.

GLASGOW INSTITUTE OF ARCHITECTS.—On the 13th inst. in the Bath Hotel, Glasgow, Mr. William Maclean, who acted from 1868 till 1889 as Secretary of the Glasgow Institute of Architects, was presented with a testimonial. Mr. William Leiper, A.R.S.A., President, presided. The testimonial took the form of a bust in bronze of Mr. Maclean, executed by Mr. Pittendreigh Macgillivray, A.R.S.A.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of this Council was held on Tuesday afternoon last, the Chairman, Lord Rosebery, presiding.

Tenders.—Tenders for iron fencing at Battersea Park were opened by the Chairman. We print the list elsewhere.

Loans to Local Bodies.—On the recommendation of the Finance Committee, sanction was given to the following loans:—To Camberwell Vestry, 20,000*l.*, for contribution towards the purchase of land for the extension of Peckham Rye, term 48 years; to the Hackney District Board of Works, 1,500*l.* for the purchase of land, erection of mortuary, &c., 30 years; to Rotherhithe Vestry, 3,800*l.* for granite paving, 20 years; to the Wandsworth District Board of Works, 3,500*l.* for purchase of site for store depôt, 35 years; to the Islington Baths Commissioners, 5,000*l.*, for the erection of baths in Hornsey-road, 30 years; to the Stratford-by-Bow Baths Commissioners, 3,850*l.* and 7,550*l.*, for completion of baths, 30 and 10 years; and to the Managers of the Central London District School, 2,200*l.*, for the erection of buildings at Hanwell, 30 years.

Sewage Sludge and Sludge Ships.—The Main Drainage Committee reported that during the week ending May 7, 23,000 tons of sludge were taken to sea from the Northern Outfall at Barking, the estimated amount then remaining in stock being about 6,000 tons. On the subject of the general superintendence of the Council's fleet of sludge-vessels, the Committee reported as follows:—

"We are considering the arrangements to be made for the working of the whole fleet of sludge vessels belonging to the Council, when they are all completed and delivered. As the Council is aware, three are now in use, and the other two will be delivered very shortly. We are of opinion that one of the first things necessary for the proper and efficient working of the ships is the employment of a thoroughly experienced nautical man, holding a master's certificate, as general superintendent of the whole fleet. The person appointed would be required to communicate and advise, when requisite, with the Committee, and to relieve the other masters respectively when off duty. He should, moreover, be a person who has had charge of large bodies of men, and should possess good administrative as well as executive abilities. We think that the services of a suitable person could be obtained for a salary of 4*l.* a week, which is the same as that paid to the masters of the vessels, with an additional allowance of 2*l.* a month. We recommend:—

'That the Council do sanction the appointment of a general superintendent of the vessels as above described, and that an advertisement be at once issued inviting applications for the office.'"

This recommendation was agreed to.

Brockwell Park.—The Parks and Open Spaces Committee reported that

"In the plan for the purchase of Brockwell Park, the line of boundary cut off a corner of the walled-in garden, and as we are laying this out as an old-fashioned English garden, we think it desirable that the garden should be preserved intact. There is also a very narrow entrance to the park from Herne-hill, which is the principal approach, and we think that a corner plot of land adjoining should be secured so as to form a better entrance. We propose that offers of 220*l.* and 200*l.* respectively should be made for these two plots, and we recommend,—

'That, subject to an estimate being submitted to it by the Finance Committee, as required by the statute, the Council do authorise the Committee to incur an expenditure of 420*l.* on capital account for the purchase of two additional plots of land to be added to Brockwell Park.'"

The recommendation was agreed to.

Alexandra Palace and Grounds.—The same Committee also reported that they were in communication with the Middlesex County Council and other bodies, and were considering the terms upon which the Alexandra Palace estate could be obtained as a public park. In the meantime, as the Council had decided to oppose the Bill now being promoted by the owners of the Alexandra Palace estate, because it proposed to repeal a clause in one of their Acts which prohibited them from building on 127 acres of the land, the Committee now reported that the repealing clause had been withdrawn, and they therefore recommended,—

"That, subject to the omission of the clause for repealing the prohibition to build on 127 acres of the Alexandra Palace grounds, the Council do withdraw its opposition to the Bill promoted by the owners of the Palace."

This was agreed to, after some discussion.

North Park, Eltham.—The same Committee further reported:—

"We have given consideration to the question of purchasing as a public park the remaining portion, 118 acres in extent, of North Park, Eltham. The Valuer estimates the cost of this property at 35,400*l.*, and, having regard to its distance from the populous parts of the county, we are not prepared, as no contributions have been offered by the local authorities or other bodies, to advise the expenditure. We recommend—

'That no further steps be taken with reference to acquiring the remaining 118 acres of North Park, Eltham.'"

Mr. Evan Spicer moved that the matter be referred back for reconsideration; but, after some discussion, in the course of which it was stated that the land is Crown property, and has recently been leased by the Office of Woods and Forests for a short term of years to a golf club, the amendment was withdrawn, and the recommendation agreed to with the addition of the following words:—"until the local authorities or other bodies are prepared to offer some adequate contribution."

Alterations at the Cane Hill Asylum.—The Asylums Committee reported as follows:—

"We have to report that we have considered the three following tenders received for the further additions, alterations, and other works at the Canehill Asylum, viz.:—

Reed, Blight, & Co., Plymouth ...	£15,416
Kirk & Randall, Woolwich	16,562
Rudd & Son, Grantham.....	16,666

It will be observed that the lowest of these tenders is 2,056*l.* in excess of the expenditure of 13,360*l.* authorised by the Council for the works under this contract. This additional amount, we are informed, will not cause any excesss in the total estimates for the enlargement of this Asylum already submitted and approved. We recommend—

'That the Committee be authorised, pursuant to the provisions of section 254 of the Lunacy Act, 1890, to accept, subject to the Secretary of State's approval, the tender of Messrs. Reed, Blight, & Co., at the sum of 15,416*l.*, provided that they agree to the insertion in the contract of the condition that they will pay the London rates of wages and observe such hours of labour as are generally accepted in London as fair in the trades they employ.'"

This was agreed to, after some discussion.

Appointment of Resident Engineer, Blackwall Tunnel.—The Report of the Bridges Committee contained the following paragraph:—

"The Engineer has informed us that the time has now arrived when a second resident engineer should be appointed to assist in the supervision of the Blackwall Tunnel works. The Council, in December last, decided to appoint two engineers, and one has been already appointed. At the time of selecting candidates, we saw Mr. Hay and Mr. Fitzmaurice, both of whom had had experience in work carried out under pneumatic pressure. The gentleman selected for the first appointment was Mr. Hay, and it was understood at the time that the second appointment should be reserved for Mr. Fitzmaurice, who is highly recommended by Sir Benjamin Baker. He was resident engineer on the foundation work of the Forth bridge, which was put in under air pressure of 30 lbs. to 35 lbs. on the square inch, and he has a thorough knowledge of hydraulics, knowledge which will be largely required in manipulating the shield during the construction of the tunnel. We therefore recommend—

'That, subject to an estimate being submitted to the Council by the Finance Committee as required by the statute, Mr. Maurice Fitzmaurice be appointed to fill the vacant post of resident engineer, at a salary of 600*l.* per annum, to supervise the works in connexion with the construction of the Blackwall Tunnel.'"

This was agreed to without discussion.

The "Rate of Wages and Hours" Clause in Contracts.—The remainder of the sitting was taken up with the resumed debate on this question, which has been before the Council for two or three weeks. Mr. John Burns, as we have already reported (see *Builder*, May 7, p. 357), has the following motion before the Council:—

"That all contractors be compelled to sign a declaration that they pay the trades union rates of wages and observe the hours of labour and conditions recognised by the London trades unions, and that the hours and wages be inserted in and form part of the contract by way of schedule, and that penalties be enforced for any breach of agreement."

To this a large number of amendments were on the *agenda*, including that of Mr. Roberts, which was taken first by the ruling of the Chairman.

Mr. Roberts moved, as an amendment to Mr. Burns's motion,

"That a Special Committee be appointed to consider in what manner the Council can require its contractors to pay all employed on work for the Council the standard rate of wages."

Mr. Yates seconded the amendment, which, after a long debate, was voted upon, the result of the division being that the amendment was lost by 3 votes,—52 members voting for it and 55 against it.

Mr. Costelloe then moved a further amendment, which was still under discussion when the clock struck seven and the Council adjourned.

ROYAL METEOROLOGICAL SOCIETY.

THE usual monthly meeting of this Society was held on Wednesday evening, the 18th inst., at the Institution of Civil Engineers, 25, Great George-street, S.W.; Dr. C. Theodore Williams, M.A., President, in the chair. Mr. B. E. C. Chambers, Mr. R. Law, F.C.S., Dr. W. A. Sturge, and Dr. E. Symes Thompson were elected Fellows of the Society. Five honorary members were also elected, viz.:—M. A. D'Abbadie, Dr. W. H. von Berold, Dr. R. Billwiller, M. N. Ekholm, and Professor P. Tacchini. The following papers were read. (1) "Raindrops," by Mr. E. J. Lowe, F.R.S., F.R.Met.Soc. The author has made over 300 sketches of raindrops, and has gathered some interesting facts respecting their variation in size, form, and distribution. Sheets of slate in a book form, which could be instantly closed, were employed; these were ruled in inch squares, and, after exposure, the drops were copied on sheets of paper ruled like the slates. Some drops produce a wet circular spot, whilst others, falling with

greater force, have splashes around the drops. The same sized drop varies considerably in the amount of water it contains. The size of the drop ranges from an almost invisible point to that of at least 2 in. in diameter. Occasionally large drops fall, that must be more or less hollow, as they fall to wet the whole surface enclosed within the drop. Besides the ordinary rain drops, the author exhibited diagrams, showing the drops produced by a mist floating along the ground, and also the manner in which snow flakes, on melting, wet the slates. (2) "Results of a comparison of Richard's Anémographe with the Standard Beckley Anemograph at the Kew Observatory," by Mr. G. M. Whipple, B.Sc., F.R.Met.Soc. This instrument is a windmill vane anemometer, and is formed by six small wings or vanes of aluminium, 4 in. in diameter, inclined at 45 deg., rivetted on very light steel arms, the diameter of which is so calculated that the vane should make exactly one turn for a mètre of wind. Its running is always verified by means of a whirling frame fitted up in an experimental room, where the air is absolutely calm, and, if necessary, a table of corrections is supplied. The recording part of the apparatus differs entirely from any other anemometer, and is called the Anémo-Cinémographe, and in principle is as follows:—The pen, recording on a movable paper, is wound up at a constant rate by means of a conical pendulum acting as a train of wheel-links, whilst a second train, driven by the fan, is always tending to force it down to the lower edge of the paper; its position, therefore, is governed by the relative difference in the velocity of the two trains of wheel-work, being at zero when the air is calm, but at other times it records the rate of the fan in mètres per second. The author has made a comparison of this instrument with the Standard Anemometer at the Kew Observatory, and finds that it gives exceedingly good results. (3) A paper was also read on the "Levels of the River Vaal, at Kimberley, South Africa; with remarks on the Rainfall of the Watershed," by Mr. W. B. Tripp.

Books.

A Guide to Electric Lighting. By S. BOTTONE. London: Whittaker & Co. 1892.

MR. BOTTONE addresses himself, as we find from the title-page, to "householders and amateurs," and, as appears elsewhere, "to all who lay any claim to an intelligent knowledge of their surroundings"; that is, his aim is partly practical and partly educational. From neither point of view can he be said to have succeeded. The householder who should try to install the electric light in his own house, relying on the meagre and not over-trustworthy information to be found in this book, would find his experiment an expensive one; nor, after he had called in an electrical engineer to set things right, would he find the "Guide to Electric Lighting" of much use in meeting the occasional difficulties that generally arise in private installations.

The amateur fares rather better; he is supplied with some useful tables, and with details respecting primary batteries which, however out of place in a treatise on electric lighting, may well be of service to him.

It is the gentleman in search of "intelligent knowledge" who is most to be pitied if he falls into Mr. Bottone's hands. Mr. Bottone is very fond of the word "intelligent." A reader of this class wants a clear exposition of the principles and elements of electrical science as applied to electric lighting; he does not want minute details (such as the specific gravity of the sulphuric acid in a cell) and trade illustrations of various machines, obsolete and otherwise; he is probably a man of some education, and when he reads "the resistance becomes additive; *in other words, we must add the resistances of each of the cells together*;" will be disposed to ask how many resistances *each* of the cells may possess; he may even have some acquaintance with applied mathematics, and form a low estimate of an instructor who (p. 45) measures "angular velocity" in feet per minute; or he may be so constituted that the accuracy of the information conveyed in the sentences,—"If lighting lamps known as arc lamps (to be described further on) be his intention, the preference will lie with machines which are series wound. If, on the contrary, incandescent lamps are in view, the shunt wound or compound wound dynamos will be indicated,"—will insufficiently compensate him for the irritation produced by the sentences themselves.

Passing from the consideration of style to that of matter, it is as well to say plainly that when Mr. Bottone writes on dynamos, he is writing on a subject that he does not understand. If this appears to anyone a hard saying, let him read the calculations given on p. 46, and try to imagine the mental picture of a dynamo in the mind of a man to whom it seems sense.

There is a plentiful crop in this book of the errors usually found in writers whose physical ideas are in a fluid condition. Thus we have "electric energy in the form of current," "transformed into mechanical energy in the form of motion," and, again, "the conversion of mechanical energy into electricity." We are told that a "conductor becomes heated in proportion to the amount of current it has to carry, and to the resistance which it presents to the passage of that current." "Electricity itself is another form of motion," and that "the term *watt* has been introduced to indicate the amount of electrical energy contained in one volt by one ampere."

Even in describing the practical details of dynamo construction the author contrives to make mistakes; for example, he calls the collector rings of an alternator "commutators" (apparently because they do *not* commute the currents), and speaks of them as "insulated from one another, but each (*sic*) connected to the opposite ends of the armature wires."

There is one class of readers, however, to whom we can heartily recommend this book—Mr. Bottone refers to them as frequently raising the question: "Can a dynamo be driven by an electric motor which is *itself* actuated by the current from a battery?" To this species of "intelligent reader" the errors of which we have given examples will be of no importance; and they will, in accepting the author as their instructor, be under the guidance of an intelligence superior to, but not far removed from, their own.

A History of Water-Colour Painting in England. By GILBERT R. REDGRAVE. London: Sampson Low, Marston, & Co. 1892.

THIS is one of the South Kensington series of "Art Text-books," and gives a succinct account of the leading English water-colour painters, prefaced by a short chapter giving a very brief and concise history of the early art of water-colour painting. After that the book proceeds a good deal in the way of a dictionary of water-colour painters, the names succeeding each other in capitals as headings of paragraphs in which a short account of the artist and his method is given. Girtin and his methods are treated of at rather more length than most of the names, and the author gives evidence that Girtin's available palette was more varied than is usually supposed, and that no less than fifteen pigments can be enumerated among those he used, "a number," observes the author, "which would probably satisfy most of the water-colour painters of the present day, and far in excess of those in common use by the earlier masters of the art." It is interesting to know this, but we must say that Girtin's drawings do not in general produce the impression of the use of any such variety of colour. Some account is also given of the rise of the two leading Water-colour societies, which breaks in on the regularity of the biographical dictionary treatment. The main value of the book, however, is as a conveniently-sized reference-book for information about the date and artistic leanings and position of any water-colour artist about whom the reader may require information: it is more for that purpose than to read through. Some critical estimate of each painter, however, is given; these critical notes are written with sound judgment and perception, and the book fulfils very well its object of furnishing a "text-book" in regard to English water-colour painting.

The Architect and his Artists: an Essay to Assist the Public in Considering the Question, —Is Architecture a Profession or an Art? By William H. White, F.R.I.B.A. London: Spottiswoode & Co. 1892.

THIS is an amplification of a paper read by Mr. White at a provincial architectural society, some part of which in its original form was printed in our columns. There is a great deal of good sense in the paper, which those who are tempted to be exclusively "æsthetic" in architecture would do well to read; but we fail to see the point of the title, which is not such as to predispose the reader in favour of the book. Mr. White combats, with much spirit and sense, the modern idea of some gentlemen that an architect should be solely a designer of artistic buildings, and that the engineer can look after construction and drains and the surveyor after surveying; but his title phrase "the architect and his artists," seems rather to imply that the converse arrangement may be upheld, and that the architect who is a practical man may be assisted by subordinate artists. That is what it practically comes to in many cases, but surely the situation is not an ideal one.

Royal Academy and New Gallery Pictures; 1892. London: Published at the Office of *Black and White.*

THIS is the best illustrated memorial of the principal pictures of the year that we remember to have seen. The selection has been well made, and the reproductions are exceedingly good, many of them really being charming little engravings, and much more than mere memorials. The illustrations are prefaced by a brief history of the Royal Academy, with portraits of and biographical notes on the work of the leading painters. Any one who wants an interesting and valuable memorial of the contents of the two leading exhibitions of the year cannot do better than purchase the *Black and White* book.

New Holidays in Essex. By PERCY LINDLEY. London: 30, Fleet-street.

THIS sixpenny guide-book, which can be carried in the pocket, gives a map of Essex, with some routes of interest marked on it, and some information, accompanied by illustrations of places to be looked at. It will be very useful to those who wish to take walking or cycling excursions in the county.

Correspondence.

To the Editor of THE BUILDER.

THE ARCHITECTURAL ASSOCIATION.

SIR,—As Mr. Pryce and Mr. Stokes referred, at the meeting last Friday night, to some resolutions passed at the informal meeting held at Mr. Stokes's rooms, and as they omitted to explain the main point in the resolutions which the Committee objected to, and as on Friday last individual members of the Committee were debarred, by the rules of procedure, from replying or further elucidating the resolutions referred to, we think it right that the Association should know the main point that the Committee objected to, and its reasons. The Committee were asked to pass a resolution to eliminate altogether from the Brown Book and Curriculum all reference whatever to the Institute Examinations, and Mr. Stokes informed them, unless this was done, Mr. Jackson and his friends would have nothing whatever to do with the Association, though they had previously promised to assist. This reference in the Brown Book is made only to give to those students who desire to enter for the Institute Examinations information as to subjects necessary for them to take up, but it is clearly stated "that the aim of the Association courses is to help members to fit themselves for their work as architects." We failed to see why Mr. Jackson and his friends should take exception to this, and we thought that if we gave way we should only be taking a side in the controversy between the Memorialists and the Institute. In his subsequent letter to *A.A. Notes*, Mr. Jackson explained more clearly what his views and intentions were in this respect, and to these the Committee could not assent. It is worthy of mention that the Royal Institute have just voted to the A.A. scheme 300*l. without any reservations or conditions whatever.* Mr. Stokes was hardly fair in charging the Committee with narrow-mindedness and bias in refusing to sign the petition to the Royal Academy with reference to the proposed reform of the Academy Schools, because he omitted

to explain the terms of that petition, and, as he had already resigned before it was considered, he could not know what occurred. The Committee did give the matter the fullest consideration, but they came to the conclusion that as it contained many statements with which they did not agree, and about which there would probably be much difference of opinion in the Association, it would be wrong for them to sign it in their corporate capacity, and so pledge the name of the Association without first giving the members an opportunity of expressing an opinion upon it. This they were willing to do, and offered to publish it in *A.A. Notes*, so that the members might have an opportunity of discussing it, but the promoters objected to this course on the ground that it was a private document and could not be published in the manner proposed. Under these circumstances, the Committee felt that they ought not to sign it as a body, or to allow it to be placed in the Studio for signature by individual members, as by doing so it would create the impression that they approved of it.

With regard to *A. A. Notes*: as it had for some time past given too great and exclusive prominence to a particular set of opinions, we asked for the resignation of one of the Editors, and, in order that there may be some official control over the journal, we passed a resolution making any future President manager—as he would be, for his term of office at any rate, the elected representative of the Association. This view formerly received Mr. Stokes's active support. We believe that the Association can only continue to be useful by maintaining the independent position which it has always held and defended, and which no one who knows its temper can suppose for a moment that it will sacrifice. It must not lean either upon the Institute or upon the Academy alone, or upon any support less broad than that of the whole body of architects and students of architecture in the country. It must recognise in its curriculum all tests, whether by examination or otherwise, of progress and efficiency, established by the Institute or by the Academy or by any other recognised authority.

This is the position we thought, and still think, the Association should maintain.

(Signed)

H. O. CRESSWELL. | HAMPDEN W. PRATT.
E. W. MOUNTFORD. | WILLM. BURRELL.
EDMUND WOODTHORPE. | E. S. GALE.
F. R. FARROW. | F. T. W. GOLDSMITH.

SIR,—The whole of the difficulty of the A.A arises from one cause, and the only question the members of the A.A. are called upon to decide by their votes is the following:—

Is the assistance of the Memorialists worth the price demanded by them for such assistance?

The price demanded is, that the A.A. shall purge itself from all connexion with the Examination scheme, and refuse to assist its members in preparing for same, thereby cutting itself off from the large body of members of the profession which considers an Examination desirable.

Mr. Stokes and those who think with him say this price is not too great; but in my opinion the aim of the Association should be to enable its members to learn every branch of study necessary for an architect, and to hold an independent position free from dictation by any one.

I should much appreciate the assistance of the Memorialists, and regret that they should deem it necessary to demand such payment for it, but as they do so, in such unqualified terms, I must decline to accept it, and the members of the A.A. must decide for themselves.

WILLIAM BURRELL.

9, *Adam-street, Adelphi*, May 19, 1892.

BOSTON CHURCH.

SIR,—It is hardly worth while replying to the anonymous correspondent in your last issue except to state that the restoration now being carried out is not to the west door, but to the wall, arcade, and plinth courses of tower.

The work to the west door was completed in 1890 and, therefore, it is impossible to understand what original work existing "only six months ago" he looked for in vain.

If your correspondent had applied to me I should have been pleased to give every information in my power; I mention this because it must be known to him that the late vicar, Canon Blenkin, who would readily have explained what had been done, died last February. W. SAMUEL WEATHERLEY.

20, *Cockspur-street, London.*

ST. PETER'S CHURCH, BUSHEY HEATH.

SIR,—In your issue of the 14th inst. (page 372) you complain with reference to the above and other drawings which were published in the *Builder*, and now appear in the New York quarterly, the *Architectural Record*. You write:—"We can have no reasonable doubt that they are plundered from our pages, without the ceremony of saying 'with your leave' either to us or to the original owners of the drawings, who might be supposed to have some right to be consulted in the matter." I agree with you. My drawings were not sent to the *Architectural Record* or to any other journal excepting your own, and no permission was asked or given by me that they should appear in the *Architectural Record*.

JAMES NEALE, F.S.A.

10, *Bloomsbury-square, W.C.*

The Student's Column.

WARMING BUILDINGS BY HOT WATER.

XXI.

BUILDING WORKS—GENERAL INFORMATION—QUANTITIES.

IN treating of the heating of buildings the various phenomena relating to circulation, radiation, &c., are governed by precisely the same natural laws as in glass-house works. The circumstances and general conditions and the general points to be considered are, however, so different, that it becomes almost a distinct calling from horticultural works, and in many cases a man who can execute one may be almost at a loss with the other. The difference is as great as with those works for the supply of hot water for baths and domestic purposes, this being a quite distinct branch of practice.

One peculiarity of buildings works is the pressure that manifests itself when the pipes extend up two or more floors of a building; a pressure that needs consideration in many ways, particularly as to the joints of pipes, &c., which must be capable of withstanding it.

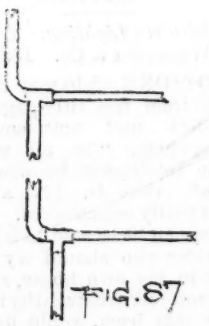
The pressure comes about in this way. When pipes extend any distance above a boiler, and they are charged with water, the weight of this water must be pressing downwards towards the boiler, and we learn from any work upon hydrostatics that the pressure so exerted is 1 lb. per square inch for every 2 ft. 4 in. height. In other words, if a pipe of 1 square inch area and 2 ft. 4 in. high, be filled with water, its contents will weigh 1 lb. If the pipe was set up on its end the weight of its contents, 1 lb., would be pressing upon what it was supported by. It is very necessary to avoid the notion that the pressure is in any way associated with the heat; it is merely weight of water. An apparatus extending, say, 42 ft. in height, would cause a pressure of 18 lbs. to be exerted upon every square inch surface in the boiler, or in the pipes near the boiler. As we rise above the boiler the pressure decreases in like ratio, that is, every 2 ft. 4 in. above the boiler the pressure become 1 lb. less, until we arrive at the top, where the pressure is *nil*. It is only vertical height that counts; it matters not how the pipes may be carried, the distance from the supply cistern at top to the boiler at bottom, in a vertical line, is the sum of the pressure exerted. It may be noted that the pressure is identically the same whatever the size of pipe, whether they be, say, 1 in. or 4 in.; but the reader is referred to my elementary work on Hydrostatics for these details.

It should be mentioned, as there is an idea rather prevalent that the size or area of the feed-cistern in some way governs the pressure, that this impression is wrong. The contents of this reservoir make no difference in pressure except as to its height. If in one case a very shallow cistern was used, and in another instance a very high cistern, and this latter filled quite full, then the higher cistern would bring a greater pressure to bear, but only 1 lb. for every 2 ft. 4 in. of its height, the same as in a pipe. If we wanted to get the exact pressure we should measure from the level of the water in the cistern to the centre of the boiler, the shape or extent of the cistern need not be considered. It may be well at the same time to explode the idea that pressure assists the circulation. It does not do so, yet at the same time as a high pressure means a high apparatus, a good circulation is always (or nearly so) obtained when a good pressure exists. It is, however, the height of the apparatus that increases the motive power, the pressure is merely a consequence, and has no active part in aiding circulation. If the pressure was down one pipe and up the other it would be a different thing, but the pressure is equal down all pipes, irrespective of whether the water has to travel up or down them.

The strain upon the boiler and pipes need not have any injurious effect. It makes care necessary in jointing the pipes as just mentioned, and when the apparatus extends a good height, the shape of the boiler has to be considered. Many a saddle boiler has been bulged inside by this cause, as it must be remembered that, say, 40 lb. pressure per square inch amounts to between two and three tons per square foot. Of course the larger the boiler the greater likelihood of its becoming misshapen by the strain. If the vertical height of the apparatus is mentioned to the boiler-maker he will say if the boiler selected is suitable.

If an apparatus burst throught this great strain or pressure of water, no harm would ensue unless anyone be near enough to be scalded by the outrush of hot water (supposing it to be hot). The fracture would be merely a fissure and no expansive or rending force would be felt. If the apparatus had its expansion pipe and other outlets closed, an explosion would occur, which would have very different results.

In works of this kind there is, we may say, never any lack of motive-power or strength of circulation. The extent to which the pipes always run vertically gives us this. It is so different to horticultural work in which vertical pipe is absent. When the mains are quite vertical, which is often the case, the circulation is so rapid sometimes as to carry the water right past the branches, ignore them, so to speak, and provision has frequently to be made to obviate this. Sometimes the provision is in the form of stop-valves; but a natural and simple arrangement, if found necessary, is to joint the pipe at every branch, as Fig. 87.



The size of the mains differs more in these works than with horticultural apparatus. They vary from 1¼ in. to 3 in. or even 4 in. The former size is only suited for moderate-sized works, but with vertical pipes it is quite astonishing what a quantity of hot water small pipes can deal with. When these mains are not used for radiating purposes, they should be covered carefully, as already described. There should be no loss of heat. Where cost will admit, it is best to err towards having mains of sufficiently full size; it is a real gain, provided they are covered and cause no loss of heat. It will have been gathered that the higher the apparatus extends, the smaller the mains may be, to give certain results; but never run the risk of their being too small.

The water supply to these works is provided for by a cistern of the necessary capacity, as per the rule already given. Sometimes the water is added by hand, but in these works it is usually a ball valve that automatically makes good the loss. The particular objection to these articles is, that at the best, they are not very reliable, and in fulfilling this duty, the demand for water being so small, they get stuck and out of order for want of regular use. They should be looked to regularly. It is a not uncommon practice to terminate the upper extremities of the main flow and return in a small tank; it is a very good plan, and in several little ways is found a convenience. If the apparatus is hand-filled, the water is put into this tank, which will answer as a filling cistern. In many cases the highest part of the circulating pipes may be a coil, and no tank is

permissible. The tank is only suggested when conditions are quite favourable.

The discharge of air from the apparatus is quite different to anything we have yet spoken of. It is practically impossible to use air-pipes; they would sometimes have to be 60 ft. long, as it would be imperative that they reach up to a point above the level of the supply-cistern, and as we should require one from every branch of pipes and every coil or radiator, the expense would be great, and they would be visible in all directions. The customary arrangement is to use air-cocks, one at each highest point; if pipes, one at each furthest extremity; if coils or radiators, then one upon the extreme top of each of these. The ordinary form of air-cock is as fig, 88, but a new one

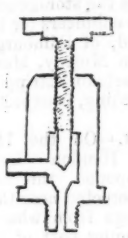


FIG. 89

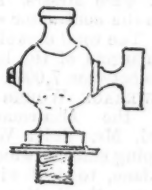


FIG. 88.

having several good features has been introduced, as fig. 89 (section). Air-cocks need regular attention about once a fortnight, as air is continually finding its way into the apparatus, and collects at the highest points. When opening air-cocks to discharge air, it is necessary to hold a cloth over, as we cannot tell whether the air is all out until water issues, and the issue of water under pressure, however little, may do damage to wall-papers or decorations, &c.

When an apparatus is wholly devoid of air pipes, it is very desirable to have an expansion pipe at some point. It is not absolutely necessary, as the cold supply-pipe and cistern allow for the actual increase in bulk of water, but if the apparatus overheats, and other such possible happenings, the expansion-pipe becomes useful. It is never a great expense.

QUANTITIES.

A cubical contents table is about the only practical means of arriving at the quantity of pipe needed in works of this character. There is a rule which is based upon the area of glass (windows), the deperdition or loss of heat by walls (certain thicknesses, materials, and position), and the degree of ventilation, &c. This rule, however, is rarely, if ever, resorted to. If it were discussed here, it would involve so many points, particularly as to aspects and ventilation, as to complete the rest of these papers by itself.

Hood, when he gave his excellent though complex rule to the world, applied it almost wholly to glass-house work which it is well adapted for, but he also, unfortunately, endeavoured to make it apply to building works by allowing so many cubic feet of air per person occupying the room or place. It will be seen what a weakness this introduces in the fact that, firstly and chiefly, the number of people has no relation to the size of the apartment. A small lecture-room may be calculated to have an average of 200 people in it, yet some private reception-rooms would be nearly as large and yet not exceed an average of 20 occupants. A rule founded this way will not work at all satisfactorily unless a variety of allowances be made, with doubtful results. It would be better to calculate the wall and window surface, but this is not so good as basing calculations on cubic contents.

In arriving at quantities in these works there is always some guesswork introduced and allowances needed,—in fact, the tables given by all writers are subject to this. In the use of the following table it must be seen that, firstly, the glass or windows are of ordinary area or number; secondly, that the ventilation is normal (except in drying-rooms, &c., where unusual ventilation is allowed for). The place to be heated must not be naturally damp or exposed by being an addition to a main building, or standing out so that it is liable to greater cooling influences than ordinary. Again, consideration must be given as to whether the boiler fire has skilled or indifferent attention. In buildings, particularly residences, the attendant is very commonly a page-boy or man-servant, who only knows that the fire must not be allowed to go out. All these things occur readily to the mind after a little experience. It is hard to say what allowance is necessary in these different cases, but supposing all of them to exist at once, it would necessitate doubling the quantity of pipe given in the following table.

This table is based upon the water in the pipes being at a temperature of 180 deg. F., and the lowest external temperature 20 deg. F. Ordinary conditions: A foot length of 4-in. pipe is as nearly as possible a superficial foot of surface; for 3-in. pipe add one-third: for 2-in. pipe the quantity must be doubled:—

Temperature required.	Quantity of 4-in. pipe required for every 1,000 cubic feet capacity in a brick-built room. Windows as usual.	Some of the uses for which the heat may be required.
Deg. Fah.	Feet.	
50	6	Coach-houses, &c.
55	7	Work-rooms, &c.
60	8 to 9	Churches, bedrooms.
65	10	Living-rooms.
70	35	Drying-rooms, herbs, paper, &c. Free ventilation. This heat when empty and dry.
75	45	
80	60	
100	110	Drying-rooms for moist articles, laundry-work, &c. Full ventilation. This heat when empty and dry.
110	140	
120	180	

For the higher temperatures given good attention at the boiler is necessary, and the water kept at or as near boiling-point as possible. The allowance necessary if pipes are in channels with gratings over (or coils beneath floors) is the same as with glass-house work,—viz., one-third more pipe needed. This commonly occurs in church work which has either lines of pipes in channels, or stacks of pipe here and there beneath the floor, with gratings over. The latter causes a very disagreeable amount of heat to be felt by those whose seats are near these openings.

SURVEYORSHIPS.

NELSON (LANCASHIRE).—Mr. J. W. Bradley, of the Borough Engineer's office, Leicester, has received this appointment, the salary of which is 250*l.* per annum. There were ninety-three applicants for the appointment. The office became vacant by the appointment of the present Surveyor (Mr. J. A. Crowther, formerly of Leeds), as Borough Surveyor of Bootle.

OBITUARY.

DEATH OF AN OLD DISTRICT SURVEYOR.—The death of Mr. H. J. Hammon took place recently. He was appointed in 1853 District Surveyor of St. Luke's, Old-street with the Liberty of Glasshouse-yard, when there was a fierce contest with Mr. F. W. Porter, afterwards elected to the Holborn District. Mr. Hammon was in his eighty-second year, and for some years resided near Battle, Sussex. It is expected that the District will be added to one of the adjoining ones.

MR. GEORGE FREETH ROPER.—At the moment of going to press we hear with regret of the death of Mr. George Freeth Roper, whose name will be familiar to many of our readers. He died on the 14th inst., aged forty-nine.

GENERAL BUILDING NEWS.

REBUILDING OF ST. WERBURGH'S CHURCH, DERBY.—On the 26th ult., the Duke of Devonshire laid the foundation-stone of the new Church of St. Werburgh, Derby. Sir Arthur Blomfield is the architect, and in his plans for the new structure the present tower, chancel, and organ chamber, which are of comparatively modern date, are preserved intact. The new nave is to consist of five bays, and the total length will be 88 ft. 8 in., the width being 62 ft. 2 in. The body of the church will be 60 ft. high, with an open hammer-beam roof. The chancel will be 40 ft. 6 in. by 27 ft. At the end of the chancel there will be a seven-light window, with a carved reredos below. The walling will be of Coxbench stone, which from the exterior will be rock-faced, and in the inside hammer-dressed. The dressings will also be of Coxbench stone, except in the case of the finer parts of tracery, which will be worked in Hollington stone. The roof will consist of green slates with lead gutters, and stone-embattled parapets. The entire area of the nave will be paved with wood blocks, whilst the chancel, which will be divided from the nave by a dwarf screen, will have a tiled floor with steps of Portland stone. The seating accommodation will be for 878 persons. The contract for the building was let to Messrs. Shillitoe & Sons, of Bury St. Edmunds, and the total cost has been estimated at between 11,000*l.* and 12,000*l.*

POLICE STATION, CATHCART.—Plans by Mr. Davidson, of Paisley, for a new police station at Cathcart, near Glasgow, have been approved by the County Committee. The style adopted is Scotch, and, as part of the building is three stories in height, it will be quite a prominent building in the district, where (as yet) the houses are principally of one and two stories.

HALIFAX MARKETS AND ARCADE.—These works have now let, and the contract for covering the roofs has been secured by Messrs. Helliwell & Co., of Brighouse and London, for their well-known patent system of glazing without putty. The architects are Messrs. Leeming & Leeming, of London.

RESTORATION OF PARISH CHURCH, GIGGLESWICK, YORKSHIRE. — The ancient Parish Church of Giggleswick, near Settle, has just been re-opened by the Bishop of Richmond, after extensive restoration. The work, which has cost some 3,500*l.*, has been carried out from the designs of Messrs. Paley, Austin, & Paley, architects, of Lancaster, the contractor being Mr. H. Brassington, of Settle. The work done includes the construction of an organ chamber and vestry, the erection of a heating apparatus chamber, the re-roofing of the entire fabric with oak and lead, the pointing of the stonework, the re-seating of the interior, and the erection of several stained-glass windows in the body of the church and the clearstory.

NEW LIBRARY FOR SOLICITORS, EDINBURGH.—The new library for the Society of Solicitors in the Supreme Courts of Scotland, was opened on the 12th inst. by the Lord Justice-General of Scotland, the Right Hon. J. P. B. Robertson. The site of the library is in the Cowgate, to which it shows a frontage of 150 ft., and as the Cowgate is at a much lower level than Parliament-square, the Society's premises, says the *Scotsman*, have been put in the topmost stories of the building, so that the top or main story is on the same level as the floor of Parliament House, with which it is connected by a bridge, which is a continuation of the corridor between the Inner and the Outer Houses. The four lower stories have been turned into artisan dwelling-houses, with shops on the basement. On the main or top-floor, beginning at the west end, is an entrance-hall, lighted by four stained-glass windows. A staircase, executed in teak, leads from the hall to the flat below, and facing the entrance is the reading-room, 30 ft. by 22 ft. East of the entrance hall is the main library, measuring 74 ft. by 42 ft., with arched ceiling. Each side is divided into five alcoves, and the bookcases have been made part of the architectural features of the room. Each block is terminated by pilasters facing the interior of the room, and from the tops of these spring a series of elliptical arches supported on moulded and carved trusses. The windows are to be of stained glass. A gallery with ornamental iron railing runs round three sides of the room. Beyond the library, entering off it to the eastward, is the Society's hall, 40 ft. by 26 ft.; librarian's room and other accessories. The second story, entered from the staircase in the vestibule, is taken up with book stores, repairing and sorting rooms, consulting rooms for members of the Society, and heating apparatus. There is accommodation in the library and stores for about 70,000 volumes. The architect has been Mr. James B. Dunn, of Edinburgh, whose design was selected in competition. The cost of the site and building has been close on 30,000*l.*

ST. BARNABAS' CHURCH, BELFAST.—On the 7th inst., the memorial-stone of St. Barnabas' Church, Duncairn-gardens, Belfast, was laid by the Mayor of Belfast. The church is being carried out in the Early English style. The materials used are red perforated brick, with white Scotch stone dressings. The church when completed will consist of a nave 70 ft. long by 27 ft. wide, with north and south aisles, divided from the same by a series of moulded arches carried on cut-stone piers. The chancel, which is approached by an arch springing the full width of the nave, provides accommodation for clergy and choir. The church at present being built will seat 550 persons, but when the north aisle is added accommodation will be provided for 770. The contract is being carried out by Mr. Thomas M'Millan, of Belfast, from the plans and under the superintendence of the architect, Mr. Henry Seaver, also of Belfast.

RESTORATION OF WOODHAM MORTIMER CHURCH, ESSEX.—The re-opening, after restoration, of St. Margaret's Church, Woodham Mortimer, by the Bishop of St. Albans, took place on the 27th ult. With the exception of the south wall and the east end, the whole of the church, says the *Essex County Chronicle*, has been rebuilt. A new arcade takes the place of the north wall, and the old north transept has been replaced by an aisle. In the roof of the aisle are two dormer windows. The church has now also the addition of a new vestry; the old gallery and organ-loft, which stood at the west end of the church, have been pulled down, and the organ has been enlarged and repaired by Fincham & Co., of London, and placed in the transept. Previously there was no west window, but in the course of the alterations an old one was found beneath the plaster, and it has

been opened up and restored. Two windows,—one a Norman and the other Decorated,—were also discovered in the south wall after the plaster was stripped off, and they have been opened up. The old-fashioned high-backed pews have been replaced by modern benches of oak; the floors and aisles are laid with blocks of wood, and a new heating apparatus has been put in. The church furniture is of oak, the altar-table and rails and the pulpit and lecterns being made of old carved oak. The roof is of yellow deal, panelled and ribbed, with a plain cross on the chancel beam. In the east end is a three-light window with stained glass, the subject being the Nativity. The tracery is filled in with angels bearing instruments of music. At the side of the altar is another painted glass single-light window. At the south side of the chancel is a two-light window (replacing a single light) with two figures, St. Peter and St. John. The west window has two painted-glass lights representing the figures of Charity and Purity. The painted glass windows are the work of Messrs. Heaton, Butler, & Bayne, of London. The restoration has been carried out by Mr. H. Gozzett, sen., at a cost of about 1,750*l*. The architect was Mr. Sidney Gambier Parry, of Westminster.

PROPOSED RECONSTRUCTION OF THE COUNTY BUILDINGS, EDINBURGH.—It is proposed to reconstruct the Edinburgh County Buildings, and, according to the *Edinburgh Evening News*, several members of the Justices of the Peace of Edinburgh, being dissatisfied with the plans prepared for the County Council, had new designs prepared for them by Mr. M'Farlane Cameron, architect, of Edinburgh. It is proposed to bring the frontage forward to the present line of pavement, leaving a small area light only at the north-west corner. A large entrance from George IV. Bridge is provided. The front is treated in Palladian Classic, and the lines of the present building have been retained. It is proposed to ask support from the Town Council in the matter.

CATHEDRAL OF ST. MACARTAN, MONAGHAN.—According to the *Freeman's Journal*, the Cathedral of St. Macartan, Monaghan, is fast approaching completion. It is a Gothic structure, and the foundation-stone was laid more than twenty years ago by the late Bishop M'Nally. The building was designed by the late Mr. M'Carthy, but since 1883 it has been in the hands of Mr. Hague, who has been responsible for the spire and the larger portion of the interior fittings and embellishments. The spire springs from a tower built against the southern transept of the church to the height of 245 ft., and is furnished with cathedral bells. Internally, there are five altars,—the high altar, surmounted by a baldachino, and the four side altars, each with a reredos of interlaced marbles. The flooring and balustrades of the sanctuary, the choir, the side-chapels, and the baptistry are in mosaic of fourteen varieties of Italian marble. The statuary is from Carrara. On the western façade of the Cathedral is the statue of St. Macartan. The western door is flanked by two statues of SS. Peter and Paul, and its tympanum is filled by a bas-relief in marble, representing Our Lord committing the keys of Heaven to St. Peter. In the colonnade of the northern transeptare statues of seven saints. On the corresponding colonnade of the southern transept stand seven figures of personages interesting to the people of Clogher. On the southern front of the tower is a figure of Our Lord. There are seven stained-glass windows in the apse around the high altar, and in the four side chapels the altars are surmounted by stained-glass windows. The oak furniture of the Cathedral has been supplied by Messrs. Brien & Keating, of Wexford. The Cathedral organ is the work of the Messrs. Telford, of Dublin. The stained-glass windows were executed by Messrs. Cox, Buckley, & Co., London and Youghal; Messrs. Early & Powells, Dublin; and Messrs. Mayer & Co., of London and Munich. The decoration of the Cathedral walls is the work of Mr. Mannix, of Dublin.

CHANCEL, PARISH CHURCH, UPHILL.—The parish church of Uphill, Somerset, was re-opened on the 10th inst., after the building of a new chancel, in addition to which new choir and clergy vestries, organ chamber, north and south porches, have been erected, and the nave reseated with oak seats. The architect for the work is Mr. G. F. Burr, of Hastings; and the contractor Mr. Charles Addicott, of Weston-super-Mare. The cost has been about 1,650*l*. The wrought-iron gates to the chancel-screen, which is of oak and carved chestnut, were executed by Mr. George Wilson, of Birmingham, from the designs of the architect.

PUBLIC BATHS AND PUBLIC HALL, CHEETHAM HILL, NEAR MANCHESTER.—Land has just been purchased and plans approved for the erection of public baths and a public hall in the Bury Old-road, Cheetham, Manchester. Messrs. Booth & Chadwick, of Manchester, are the architects. The public hall will be built on the higher and the baths on the lower land, but all the principal entrances will be from Cheetham Hill-road. The first-class swimming-bath will have a water area of 54 ft. by 27 ft., and the second-class bath one of 75 ft. by 24 ft. The latter will be surrounded by a balcony. The pavilion in which it is situate is so arranged as to be capable of being used as a gymnasium in the winter months. There are twenty slipper-baths and three waiting-rooms. A residence for the superintendent will be situate over the ticket office and entrances to the baths, and in connexion with this department there is to be a tower for a public clock. The laundry and boiler-house are centrally situate between the two large swimming-baths, and the fall of the land will enable the boiler-house to be approached on the street level from Back Halliwell-lane. The public hall will be on the ground-floor level, and will be practically a separate building. The principal room will have a clear floor area of 64 ft. by 42 ft., and there will be a balcony gallery in addition. There will also be five retiring and cloak rooms, with lavatories, &c., attached, a refreshment-room, serving-room, and a cellar kitchen. There will be an entrance-hall leading to the public-room; and the retiring-rooms for ladies and gentlemen will be placed to the right and left of it. Additional doors for occasional exit are provided from the public hall and from the large second-class bath pavilion. The design of the buildings is based on the Italian style, with some of the earlier features of the Elizabethan introduced in the windows, &c. The main fronts will be faced with Ruabon stock bricks and terra-cotta. The public hall will have a panelled ceiling, and be lighted by a series of mullioned windows.

RAGGED SCHOOLS, MANCHESTER.—The new buildings for Charter-street Ragged School and Girls' Home, Manchester, were opened on the 28th ult. by the Baroness Burdett-Coutts. The new buildings are situated on a plot of land lying between Ashley-street and Charter-street. On the ground floor at the corner of Ashley-lane and Little Nelson-street is a mission-hall capable of accommodating 500 persons, with two public entrances in Ashley-lane and a platform entrance in Little Nelson-street. On the first floor, above the mission-hall, is a school-room to accommodate 700 children, with two class-rooms in addition to accommodate 40 each. The infants' school is placed on the ground floor, with an entrance through a yard from Charter-street, and an entrance for the teachers and visitors from Little Nelson-street. The room is 63 ft. long, and will accommodate 500 infants. The whole of the roof is of glass. There is a gallery for infants at one end of the room, which is to be divided off from the rest of the room by a movable shutter, and there is a platform at the other end. The Girls' Home provides accommodation for about forty young women. The girls' sitting-room is 32 ft. by 20 ft., lit with three bay windows facing the south and east. This room is heated with one of Shorland's ventilating stoves. On the first floor of the home is provided a wash-house. The girls' kitchen is provided with a cooking range. The hot water for the kitchens and bath is generated in a boiler in the basement, and the water is circulated in copper pipes to the wash-houses, lavatories, kitchens, and baths. The materials used for the exterior are second brick with red dressings, and the walls inside have been pointed and colour-washed. The general contract for the work has been carried out by Messrs. Peters, of Rochdale, from the plans and under the supervision of Messrs. Maxwell & Tuke, architects, of Manchester.

CHURCH OF ST. GILES, LULSLEY, WORCESTER.—On the 25th ult. the foundation-stone was laid of the Church of St. Giles, Lulsley, Worcester, which is being built near the site of the old church. The church is to be built of a red sandstone from a local quarry at Blackswell. The architects are Messrs. H. Rowe & Sons, of Worcester, and the builder is Mr. T. Collins, of Tewkesbury.

SANITARY AND ENGINEERING NEWS.

LEOMINSTER WATER EXTENSION SCHEME.—On the 10th inst., the Corporation of Leominster received the Local Government Board's sanction to the water extension scheme which was laid before Mr. T. Codrington, C.E., last June. The engineer for the scheme is Mr. John W. B. Rooke, the Borough Surveyor.

DRAINAGE, WHITCHURCH, CARDIFF.—At a meeting of the Cardiff Rural Sanitary Authority, held at their offices, Queen's-chambers, Cardiff, on the 11th instant, a scheme of drainage for the Parish of Whitchurch, prepared by their surveyor, Mr. William Fraser, was considered and referred to a sub-committee. The scheme is estimated to cost 6,200*l*., and includes over six and a half miles of stoneware pipes ranging in size from 9 in. to 18 in. in diameter, with all necessary manholes, ventilators, and automatic flushing tanks, &c., having an outfall by eight connexions into the Ystradyfodwg and Pontypridd main sewer, which passes through the district of the authority, emptying into the Bristol Channel near Rumney.

SEWAGE DISPOSAL, LUDLOW.—The Corporation of Ludlow is now considering the question of adopting a scheme of sewage disposal. In 1861 the town was sewered by the late Mr. T. Cunley, C.E., and a system of disposal, involving deodorisation and filtration, was then adopted. Since 1861, however, sanitary science has advanced, and the sewage tanks have been pronounced by Government Inspectors obsolete and out of date. The Corporation has lately made application to the Local Government Board for permission to extend the boundaries of the Borough, and the Local Government Board have held a preliminary inquiry, the outcome of which is the Board has now sent the Corporation a map with a suggested boundary marked on it, with an intimation that it will be willing to entertain an application based on this, provided the Corporation can show that it has at the time of the application an efficient system of sewage disposal which can be made available not only for the present borough, but for the areas proposed to be added. The Corporation has passed a resolution that it will provide such a system, and has referred the question to a Committee to consider the details.

EXTENSION OF WATER SUPPLY, ROTHESAY, BUTE.—On the 13th inst. the Rothesay Municipality opened the new extension and filter-works at Ascog Loch. The extension includes not only the erection of filters, but the raising of the loch by means of a puddled embankment, which raises the storage area 6 ft. above the former level. The engineers for the work were Messrs. Leslie & Reid, of Edinburgh, while the contractor was Mr. John Murray, Maryhill. The total cost of the work, including stripping the margins of the loch and beaching, is expected to be between 7,000*l*. and 8,000*l*.

SEWERAGE WORKS AT HENDON.—On the 14th inst. the Chairman of the Hendon Local Board, Mr. John Warburton, opened the new pumping station, which has been erected near Cool Oak-lane, to deal with the sewage from what is known as the Station district, forming part of the Low Level area. The latter comprises about 1,100 acres. It has become necessary to drain this district in consequence of the complaints made by the Regent's Canal Company, who own the Brent reservoir, at Hendon, and into which pollution from the houses in the Station district forced its way when the cesspools overflowed. The Thames Conservators also complained of the same state of things, the river Brent being a tributary of the Thames. The Board instructed their engineer, Mr. S. S. Grimley, A.M.I.C.E., to prepare the necessary drawings for the works, and in June, 1891, the tender of Mr. James Dickson, of St. Albans, was accepted for the sewer, which was constructed with Hassall's double-lined pipes, 18 in. diameter, surrounded with portland cement concrete. The tender of Mr. Joseph Meston, of Westminster, was accepted for sewering and making up three roads leading to the outfall sewer, and the tender of Messrs. Crossley Brothers, of London and Manchester was accepted for the machinery. The total cost of the works has been 6,358*l*., being well within the engineer's estimate. Although the outfall sewer had to be laid about 8 ft. below the high-water mark in the Canal Company's reservoir, and closely adjacent thereto, and during the wet year of 1891, the leakage from all sources is not more than one four-thousandth part of the capacity of the sewer. The machinery consists of two 7-h.p. (nom.) Crossley's "Otto" gas-engines, with tube ignition and all the latest improvements giving out about 11½-b.p. on brake. Each gas-engine drives a set of three-throw plunger-pumps, 18 in. by 10 in., by means of Victoria belting through counter-shafting 3¼ in. in diameter, working in gun-metal bearings bolted to pump-frames. Each set of pumps will throw 350 gallons per minute, or over 500,000 gallons in twenty-four hours, into the high-level gravitating sewer through a 9-in. rising main about 800 ft. long, at a speed of thirty revolutions per minute. The sewage flows about a mile and a-half through the gravitating sewer to the outfall works where it is treated on the ferrozone and polarite process of the International Water and Sewage Purification Company.

STAINED GLASS AND DECORATION

WINDOW, ST. JOHN'S CHURCH, LONGSIGHT, MANCHESTER.—A new three-light east window has been inserted in the chancel of St. John's Church, Longsight. The subject is the transfiguration of Our Lord, He being the central figure of the upper portion, with Moses and Elias on either side. Below are the figures of SS. Peter, James, and John, one in each light. The whole of the masonry of the east wall is new. The works were designed by and have been carried out under the superintendence of Mr. Medland Taylor, Messrs. Heaton, Butler, & Bayne being the artists by whom the window was executed, and Messrs. Ekis & Hinchliffe the masons who did the stonework.

NEW WINDOWS, ST. ANDREW'S CHURCH, RADCLIFFE, LANCASHIRE.—On the 17th ult., the windows in the octagonal-shaped chancel of the Church of St. Andrew, Radcliffe, which had been filled with stained glass, were unveiled and dedicated. The twelve lights forming the seven windows have been filled with the following subjects from Our Lord's passion:—1. The supper in the house of Simon. 2. The entry into Jerusalem. 3. Christ purging the temple. 4. The institution of the Holy Eucharist. 5. Washing the disciples' feet. 6. The agony in the garden. 7. Christ before Caiaphas. 8. Behold the Man. 9. The way of the Cross. 10. The Betrayal. 11. The Crucifixion. 12. The Entombment. In each case the subject fills the whole light as far up as the spring of the arch, the rest being

filled in with shields enclosed in foliated ornament with border. The tracery above each window contains an angel holding a shield upon which is shown some instrument of the passion. The windows have been executed by Messrs. Jno. R. Lee & Co., Limited, of Birmingham.

FOREIGN AND COLONIAL.

FRANCE.—A picture in the Champs Élysées Salon has been cut with a pen-knife; the picture is M. Vibert's "Médécin Malade." It is not known who has committed this act of vandalism.——M. Camille Krantz, deputy of the Voges, member of the jury at the Universal Exhibition of 1889, has been nominated General Commissioner for the French Government at the International Exhibition at Chicago in 1893.——The section for French works of art at the Chicago Exhibition will be opened on May 1, 1893, and closed on October 30. ——The fifty-ninth session of the Archæological Congress of France will be held this year at Orléans. It will begin on June 22, and last till the end of the month.——An exhibition of paintings by G. Huet is to be held in the Galerie Georges Petit. ——M. J. Prevost has just offered to the Luxembourg Museum a picture by M. Weisz, called "Femme du Masque."——The picture by M. Edouard Detaille, "Sortie de la Garrison de Huningue," has been presented to the nation by a person unknown, but who is supposed to be an American. The picture is to have a place in the Luxembourg.——At last the fees for the architects who have reconstructed the Hôtel de Ville have been definitely settled. This work has cost 26,646,686f., not counting the work of artistic decoration.—— They are shortly to proceed with the enlargement of the Musée du Louvre, by taking in the quarters occupied by the Prefecture of the Seine since 1879. ——The State has just bought for the Louvre a fine portrait of Eugène Delacroix, by Gericault. ——A monumental door is to be placed on the Hotêl Carnavalet. This door is in a very fine style, and is the last vestige of the church of Saint Etienne des Grès.——Several French artists,—MM. Aublet, Castellani, Duez, Ferrier, Flameng, Gervex, Guillemet, J. P. Laurens, Rochegrasse, Merson, Roll, &c.,—are proposing to execute a panorama of France for the Chicago Exhibition. It will include the country, types, and manners and customs of the French provinces.——A discovery has been made near Versailles of an amphora, containing a large quantity of Gallo-Roman money.—— The General Council of Var has voted 400,000 francs for the enlargement of the Asylum of Pierrefeu, which was built in 1882, and which was the object of a very important competition, the first prize having been awarded to MM. Violet and Geyler.——The new railway to Crémaillère from Aix-les-Bains is to be opened in September next.——The death is announced of the sculptor, Louis Vidal. He was born at Nimes in 1831, and was a pupil of Barye, and received medals in 1861 and 1863. In latter years he had lost his sight.

BERLIN.—The question of a further alteration of the neighbourhood of the Imperial "Schloss" has been formally dropped, and the "Schlossplatz" is to assume the same aspect as was planned at the time of the first lottery which was opened for the purpose of raising money for the improvement of the site; and the memorial monument to Emperor William I. will have a place found for it on the east side, under the windows of the Schloss. According to the *Cologne Gazette*, this monument is now to be carried out by the sculptor Reinhold Begas and the architect Ihne.——There are a number of monuments in course of erection in the country. The one to be erected on the historical Kyffhauser had its foundation stone laid by the Duke of Schwarzburg-Rudolstadt on the 10th inst., this being the anniversary of the Peace at Frankfort-on-Main. Bruno Schmitz is the architect.——The competition for the models of the sculptural parts on Bruno Schmitz' Soldiers' and Sailors' Monument at Indianopolis has apparently been decided in favour of a Berlin sculptor, Herr Nikolaus Geiger (*Nordd. Allg. Ztg.*). This is the second piece of monumental sculpture to be done in Berlin for America. The first piece was the Washington Monument for Philadelphia, which was in the hands of Professor Rudolf Siemering. The bronze parts of this colossal monument are already for the most part in America.——The private view of the Berlin salon was on Friday. The local papers considered the show to be a fair one on the whole, although the old fault of the Berlin art exhibitions, *i.e.*, the ranking of quantity above quality, has been made by the hanging committee with the purpose of filling their halls. The sculpture hall excites much interest, partially, perhaps, on account of the huge size of the exhibits.——The official "Architekten Verein" has had a debate on the selection of a suitable site for the International Exhibition, and will give a prize of 25*l.* for the best proposition made, if accompanied by a rough plan of the grounds as proposed. Three sites are deserving of attention at present, *i.e.*, one in an outlying suburb, Wilmersdorf, (2), one in the Treptow Park, and (3), another on the large Review grounds in the south-west of the city.

MISCELLANEOUS.

THE CONVERSION OF GAUGE ON THE GREAT WESTERN RAILWAY.—The *Engineer* for May 13 contains an interesting article on this subject. At midnight this Saturday, May 21, the entire section of the line from Exeter to Falmouth, a distance of 113½ miles, will be closed to traffic, and handed over to an army of 3,500 platelayers, who will alter the permanent way to the narrow-gauge system. The whole of the work will be so far completed in forty-eight hours that the line will be opened for traffic again on Monday. With the conversion of the Exeter and Falmouth line the broad-gauge system ceases to exist in England. The broad-gauge rail on the mixed lines from Paddington to Exeter, from Truro to Penzance, and from Tavistock Junction to Lidford, will, it is true, be suffered to remain for the present, but it will be removed subsequently as occasion offers.

THE CONCENTRATION OF POPULATION IN GREAT CITIES.—The *Lancet* of May 14, contains the first part of a lecture on this subject, recently delivered at University College, London, by Dr. G. V. Poore. It is full of suggestive points. Quoting from a paper read by Dr. Gould, of Washington, before the recent International Congress of Hygiene and Demography, he says that only half a century ago the urban population of the United States was 8·5 per cent. of the whole, while to-day the urban population constitutes 29 per cent. of the whole. The American city, says Dr. Gould, "creates itself with appalling suddenness," and it is probable that Chicago, with its 1,200,000 inhabitants, having doubled its population in the last ten years, may be said in this particular matter to have beaten the record. It must not be forgotten, however, adds Dr. Poore, that London has more than doubled its population in the last half century; that Cardiff has risen from 80,000 to 130,000 inhabitants in the last ten years; that Barrow-in-Furness, Eastbourne, Bournemouth, West Ham, and Croydon, are all instances of towns (and other instances could easily be given), which have sprung into existence within the memory of many people now living. One of the undoubted consequences of the concentration of population in towns is deterioration in physical health. The disease-rate and the death-rate are both higher in urban than in country districts. The Registrar-General's returns show that for every 100 deaths in country districts there are about 120 deaths in towns. Dr. Poore deprecates the increasing tendency towards the erection of lofty tenement dwellings, and thinks that the comparatively low death-rate which London has hitherto enjoyed is to be attributed to the fact that, as a rule, each family has had a house of its own.

INNOCUOUS WHITE-LEAD.—The Patent Innocuous White-lead Company (T. B. Freeman) send us a pamphlet of testimonials from chemists and others in regard to their "non-poisonous white-lead paint," which is stated by Professor Church to be "practically insoluble, so far as the lead is concerned in water or acids, and non-poisonous, and that it possesses the merits of ordinary white-lead as a pigment without its drawbacks." A paint of which this can be said should prove a great boon to painters.

THE TRADES' MAIDEN HOSPITAL, EDINBURGH.—The Trustees of the Trades' Maiden Hospital of Edinburgh have acquired Ashfield, a residence situated to the south of the city, which, with additions thereto, is to be adapted to the purposes of the Institution. Ashfield was designed by Mr. David Macgibbon as a residence for himself, and is an adaptation of the Scottish Baronial style. It stands in about two acres of ground facing to the south and looking out upon Blackford Hill. The situation is a fine one, and there is ample scope for any future additions that may be necessary, and the style is one which lends itself to such being carried out in a manner which should add to the *tout ensemble*. The sum received by the trustees from the managers of the Sick Children's Hospital for the premises at Rill Bank was 17,000*l.*, and the price paid for Ashfield is 9,000*l.*, leaving a sufficient margin for the necessary alterations and additions.

THE LYRIC THEATRE.—Another of the London new theatres,—the Lyric, in Shaftesbury-avenue,—has just been placed in the market. This theatre, erected for Mr. H. J. Leslie, from the plans and designs of Mr. C. J. Phipps, architect, was opened on December 17, 1888. Its site covers 14,200 ft. superficial, of which 10,000 is held by an eighty years' lease, running from 1886, at a ground-rent of 1,164*l.*; the remainder, with the buildings thereon, being freehold. The frontage to the Avenue is 148 ft. long. The upper floors are occupied as residential chambers. We gave a full description of the fabric in our issue of December 22, 1888.

THE DANGERS OF BARE COPPER UNDERGROUND ELECTRIC MAINS.—Our contemporary, *L'Electricien*, published, on April 16 an article with the above title, referring to the explosion which had recently taken place in a manhole belonging to the Edison Company, in the Rue Taitbout (Paris). The statements contained in the article in question were such that, in view of the large use to which the bare copper system has been put in England, it would be imagined that English engineers would (unless in the case of the Edison Company there had been culpable negligence) have experienced similar difficulties. We are informed, however, that this is not the case, and that, with the exception of explosions resulting from coal gas leaking into the conduits, no difficulties of the kind indicated have been encountered with the bare copper system in England. Such a thing as carbonising of, or deposition of, copper salts on the conductors is, in ordinary working, unknown. Where any section of the main has got to earth through breaking of the copper, the latter has, of course, generally been eaten through; but such an accident as this cannot fairly be attributed to the demerits of the system, and is, of course, entirely the fault of the workmanship. The growth of the bare copper system of underground mains has been so rapid (there being over 100 miles now laid in England) that, on reading our contemporary's article, we were inclined to conclude that the formations referred to were of so unusual a nature as to be unfairly described as a danger to which bare underground mains are frequently subject, and that they were rather the result of careless and inefficient engineering. We are glad to find that our opinion is confirmed by those who have had most experience with this class of work in England.—*Electrical Plant.*

CHICAGO EXHIBITION.—We are informed that the new building which is now in course of erection for the headquarters of the British Royal Commission will be generally characteristic of the best type of English half-timber houses of the sixteenth century. It is proposed to use terra-cotta somewhat largely in the lower story, with red brick facing and mullioned windows, so that the building may be a typical example of an old English house. The upper portion will be of half-timber construction, with overhanging and projecting gables. The plans and designs for the whole building have been prepared by Colonel Robert W. Edis, F.S.A., the honorary architect to the Royal Commission; and the whole of the internal fittings and furniture will be executed from his designs by Messrs. Johnstone, Norman, & Co.

THE PRODUCTION OF TIN PLATES IN THE UNITED STATES.—Owing to the strenuous efforts now being made in the United States to establish the manufacture of tin plates there, to the exclusion of the British product, the report on the subject just presented by Colonel Ira Ayer, agent of the American Treasury Department, is of special interest. The report of Colonel Ayer covers the period from July 1, 1891, to March 31, 1892, the former date being the day on which the McKinley tariff came into operation. The annexed statement shows the production of tin and terne plates by quarters:—

Quarter ended	Works Established.	Tin Plates.	Terne Plates.	Totals.
		lbs.	lbs.	lbs.
Sept. 30, 1891 ..	5	152,489	674,433	826,922
Dec. 31, 1891 ..	11	215,911	1,193,910	1,409,821
Mar. 31, 1892 ..	19	1,099,656	1,904,431	3,004,087
Totals	..	1,468,056	3,772,774	5,240,830

According to Colonel Ayer's report the average annual imports of British tin and terne plates for the three years ended June 30, 1890, amounted to 678,000,000 lbs. In the year ended June 30, 1891, the imports were 1,058,000,000 lbs. This large increase of 380,000,000 lbs. was due to larger importations in the first six months of 1891 to avoid the new duty of 2·2 cents. per lb. imposed by the McKinley tariff. It is stated that, if the imports for the current year are made to meet only the actual wants of the United States, they will not exceed 300,000,000 lbs. For the eight months up to February 29, 1892, they amounted to only 177,000,000 lbs. The quantity of tin plates imported in the year ended June 30, 1891, which were used in the manufacture of exported articles, and upon which a drawback was paid, was 150,000,000 lbs. In 1890 it was 150,000,000 lbs., and in 1889 it amounted to 166,000,000 lbs. It is a stipulation of the McKinley tariff that, if after six years after the introduction of that tariff the quantity of tin plates made in the United States exceeds one-third of the quantity imported, the present duty of 2·2 cents. is to be maintained. Taking the figures given above as a basis, it is estimated by Colonel Ayer that the American manufacturers, in order to make the duty on tin plates perpetual after October 1, 1897, must produce in any one of the six years up to that date 50,000,000 lbs. of tin and terne plates.

ELECTRIC RAILWAY IN SIAM.—The contract for the electrical plant of the electric railway in Siam has gone to the United States, the Short Electric Railway Company of Cleveland, Ohio, being the successful competitors. The contract includes two 65-h.p. generators and six cars with a 20-h.p. motor to each car. It has been the custom lately for some of our authorities to congratulate this country on having allowed the Americans to go ahead of us in the application of electricity to industrial purposes. The line of argument taken is that the advances being made in this field are so enormously rapid, that we shall do well to let the Americans go a bit ahead to show us the way, and so we shall

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premium.	Designs to be delivered.
*Illuminated Clock Tower	New Sarum T. C.	20*l.* and 5*l.*	June 28
*Municipal Technical School	Manchester Corp.	200*l.* 150*l.* 100*l.* 75*l.*	Aug. 2
*New Masonic Hall	Newcastle-upon-Tyne Central Masonic Hall Co. Ltd.	50*l.* 25*l.*	No date

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Three Blocks Artisans' Dwellings, Salford	Lancs. & Yorks. R. Co.	Henry Shelmerdine	May 24
Baths and Public Room	Manchester Corp.	*Official*	do.
*Pavings, Granite, Channel, &c.	Strand Bd. of Works	do.	May 25
*Broken Granite	Hackney Bd. of Works	do.	do.
*Broken Granite, Lime, and Cement	Mile End Old Town Vestry	J. M. Knight	do.
*Construction of Brick Culvert	Borough of St. Helen's	G. J. C. Broom	do.
Granite and Whinstone Paving	Gateshead Corporation	J. Bower	do.
Rebuilding "William IV." Inn, Newport, Mon.	Phillips & Sons, Lim.	W. Gardner	do.
Wesleyan Chapel and Schools, Blaina, Mon.	Rev. Joseph Wells	F. R. Bates	do.
Twenty-five Miners' Dwellings, Wheal Agar, Illogan, Cornwall	Lord Robartes	Silvanus Trevail	May 26
Central Station Electric Lighting Plant, Malus, &c.	Yorkshire House-to-House Electricity Co Lim.	*Official*	do.
Twenty Houses, Craghead, Chester-le-Street	Craghead Colliery	J. W. Rounthwaite	May 27
Villa, "The Whins," Stotfield, Elgin, N.B.		A. & W. Reid	do.
*Public Baths	Ipswich U.S.A.	Thos. W. Cotman	do.
New Church, Omagh, Ireland	Very Rev. B. M'Namee	Wm. Hague	May 28
*Erection of House, Surbiton	A. R. Upjohn	A. Mason	do.
*Road Materials	Hendon U.R.S.A.	R. A. Wilson	do.
*Concrete Sea-wall, Promenade, &c.	Filey Loc. Bd.	*Official*	do.
*Sundry Repairs, Painting, &c.	Central London Sick Asylum	do.	May 30
Brick Intercepting Sewer	Burslem Corporation	F. Bettany	do.
*Sewerage Works	Chard R.S.A.	C. N. Lailey	May 31
*Wood Paving Works	Commrs. of Sewers	*Official*	do
*Enlargement of P. O. Gravesend	Commrs. of H.M. Wks	do.	do.
*Supply of Timber	Eton Union	do.	do.
*Making-up Carriageways	Kensington Vestry	Wm. Weaver	do.
Main Drainage (Contract No. 10)	Manchester Corp.	J. Allison	do.
*Re-fitting W.C. Rooms, Western Hospital	Met. Asylums Board	A. & C. Marston	June 1
Alterations to Church, Kildare, Ireland	Very Rev. Dr. Murphy	Wm. Hague	do.
*Extension of Old P. O. Woolwich	Commrs. of H.M. Wks	*Official*	do.
Wooden Viaduct, Elliot Pit, Rhymney Valley	Powell Duffryn Coal Co		do.
*Alterations, &c. Northern Hospital	Met. Asylums Board	Pennington & Bridgen	June 2
*Station Buildings, Leicester	M. R. Co.	*Official*	June 3
*Painting, &c. Station Buildings, Sheffield	do.	do.	do.

CONTRACTS.—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered
*Sewerage Works	Wakefield U.R.S.A.	F. Massie	June 3
*Repairs and Drainage Works at Workhouse	Newhaven Union	W. A. Mcle	do.
*Making-up Carriageway and Tarpaving Footways	Hendon Local Board	S. S. Grimley	June 6
School Work, near Chesterfield	Brimington (U.D.) S.B.	*Official*	do.
Penmaenmawr Stone	Northwich High. Bd.	do.	do.
*Tar and Asphalte Paving	Tottenham Loc. Bd.	J. E. Worth	June 7
*Sewerage Works	do.	do.	do.
*Officer's House, Freshwater Gate (I.W.)	Admiralty	*Official*	do.
*Cottages, Lewisham		Dyer, Son, & Hilton	do.
*Repairing and Painting Old Buildings, &c	St. Olave's Union	Newman & Newman	June 9
*School Buildings, Horsham	The Governors	A. Vernon	do.
*Works and Repairs, Plymouth District	War Department	*Official*	June 10
*Dock Gates	Barry Railway Co.	J. Wolfe Barry	June 11
*Sewerage Works	Chepstow Loc. Bd.	C. R. Walker	June 13
*Extension of School	Grays Thurrock Sch.B.	Geo. Waymouth	do.
Chancel, &c. Parish Church, Talley, near Llandilo	Rev. J. H. Lloyd		June 14
*Painting Barracks, Aldershot	War Department	*Official*	No date
*Road Works, Constructing Stables	do.	do.	do.
*Internal Painting, &c. Anglesea Barracks	do.	do.	do.
*Painting, &c. Warwick	do.	do.	do.
*Schoolmaster's, &c. Quarters, Worcester	do.	do.	do.
*Working Sandstone Quarry	Manchester Ship Canal Co.	do.	do.
Methodist Sunday Schools, Risca, Mon.		Thos. Howdill	do.
Twenty-seven Cottages, Blaengarw, near Bridgend	Ocean Collieries	David Griffiths	do.
Inn, Wheatley Green, Durham	Newcastle Breweries, Ltd.	S. Oswald & Son	do.
Stables, &c. Alma-road, Headingley, Leeds	Joseph Nicholson	T. Butler Wilson	do.
Bank Premises, Ashburton, Devon	Capital and Counties Bank, Ltd.	J. W. Rowell & Son	do.
Conservative Club, Bacup		Smith & Cross	do.
Large Concrete and Brick Tank, Mill Dale, near Burslem		Ford & Slater	do.
Three Lobbied House, Heron-street, Fenton, Staffs.	Richd. Woolley	Elijah Jones	do.
Church Work, Salt, near Stafford		N. Joyce	do.
Pumping Machinery, Mill Dale, near Burslem		Ford & Slater	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Clerk of Works for Waterworks	Bishops Castle T. C.		May 30
*Sanitary Inspector	Helborn B. of W.	2*l.* 10*s.* weekly	June 3
*Borough Surveyor & Inspector of Nuisances	Borough of Welshpool	110*l.*	June 8
*Head Master	Coalbrookdale School of Art		No date

Those marked with an Asterisk (*) are advertised in this Number. *Competitions*, p. iv. *Contracts*, pp. iv., vi., viii., & ix. *Public Appointments*, p. xx.

avoid those difficulties which they overcome by the light of experience. There would seem, however, to be one counterbalancing disadvantage at any rate, for whilst we are waiting, our more pushing cousins are establishing a very good connexion for the sale of electrical appliances abroad.

PUBLIC WORKS, NELSON, LANCASHIRE.—On the 17th inst. Mr. Rienzi Walton, Local Government Board inspector, opened an inquiry at Nelson into an application by the Corporation for sanction to borrow 10,000*l.* for electric-lighting purposes, 10,000*l.* for purchasing a cemetery, 7,500*l.* for the erection of a public library and technical school, and for the appropriation of land now possessed by the Corporation as a site for the technical school.

PUBLIC WORKS, MANCHESTER.—On the 17th inst. Mr. S. J. Smith, one of the inspectors of the Local Government Board, held an inquiry in the Mayor's Parlour at the Town Hall, Manchester, respecting the application of the Town Council to borrow the sum of 150,000*l.* for purposes of electric lighting, and 12,000*l.* for providing a public library for the Openshaw district.—Mr. J. W. Southern, chairman of the Libraries Committee, said it was proposed to erect library buildings to cost 15,000*l.* It was estimated that the fittings would cost 1,750*l.*—Mr. James W. Beaumont, the architect, submitted plans of the proposed library. He stated that it was expected the building would be completed in twelve months.—Alderman Sir John Harwood then gave evidence relative to the application to borrow 150,000*l.* for electric lighting purposes. He stated that the Corporation had had the matter of supplying the electric light under consideration for the last ten years. In 1890 they got an order from the Board of Trade and confirmed by Parliament empowering them to supply electric lighting. They invited four eminent electrical engineers to prepare plans for the installation, each being paid 100 guineas, and their reports were submitted to experts. It was finally determined to adopt the scheme of Professor Dr. John Hopkinson, who had been employed by the Corporation to carry out the work. The site on which they intended to erect the works was situated in Dickenson-street, off Portland-street.—Dr. Hopkinson then explained the plans for the installation. The immediate outlay, he said, would be 78,715*l.* In addition there was the cost of the site and the cost of the additional machinery, which would absorb the whole of the 150,000*l.*—The inquiry having been completed, the Inspector visited the sites.

THE ENGLISH IRON TRADE. — Comparatively little change has taken place in the English iron market since last week, but in the Cleveland district there has been more inquiry for No. 1 pig-iron owing to a prospective early increase in the Swedish tariff. In all the pig-iron centres trade is very dull, and quotations remain practically unchanged. In the finished-iron trade business is confined to hand-to-mouth requirements, and there is little alteration of note in the steel trade. Shipbuilding material continues to prove the chief article inquired for. The tinplate trade is slightly brisker, but values remain low. Engineers and shipbuilders show little fresh life. The coal trade generally is quiet.—*Iron.*

MEETINGS.

MONDAY, MAY 23.

Society of Arts (Cantor Lectures). — Dr. Percy F. Frankland on "Recent Bacteriological and Chemical Research in Connexion with the Fermentation Industries." IV. 8 p.m.

TUESDAY, MAY 24.

Institution of Civil Engineers. — Professor W. C. Roberts-Austen on "The Measurement of High Temperatures." 8 p.m.

Society of Arts (Foreign and Colonial Section).—Col. Howard Vincent, M.P., on "The Extension of Colonial Trade." 8 p.m.

WEDNESDAY, MAY 25.

Guild and School of Handicraft.—Mr. J. S. Thornton on "Slöyd." 8 p.m.

Society of Arts.—Mr. F. E. Ives on "Researches in Photochromy." 8 p.m.

FRIDAY, MAY 27.

Architectural Association.—Mr. C. R. Ashbee on "The Relation of the Architect to the Workman." 7.30 p.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

8,878.—SASH-CORD FASTENERS: *J. W. Mumby.*—This invention relates to what is described as an improved method for securing the sash-cords of windows to the sash-frames, and an improvement in the construction of moulds employed in the manufacture of appliances for the purpose. The appliance for securing the sash-cord consists of two lugs cast to, and forming part of, a bracket mounted between the lugs, and carried eccentrically on a through pin is a swing catch, the outer edge being grooved and serrated for the purpose of holding the cord when threaded between the lugs and the serrated catch. The improved mould for the casting of the fastener is constructed so that several may be cast at the same time, the mould being formed in three parts, the two outer ones forming the box, and the inner one the core, having recesses on each side of it of the size and shape of the lugs. A continuous recess along its edge forms the brackets, which are to be divided afterwards. The core is placed in the recess in the box, the latter being held by an eccentric handle. The mould for forming the swing catches has a double core, in order to form the serrated grooves, and to facilitate stripping of the castings. The boxes have troughs formed in them into which the molten metal is run, and a series of holes in the troughs communicate with the interior of the boxes and the cores.

9,152.—LOCKING WINDOW-SASHES: *G. Chisholm, Jun.*—This invention relates to an improved means for locking and unlocking, automatically, window-sashes, and providing means by which the sashes may be locked on the inside with the top sash partly open or down, and at the same time prevent the sashes being opened from the outside. The inventor mounts in the central bead of the window, at the junction of the upper and lower sashes, a metal plate having provision formed on it for carrying a small double-armed rocking lever, and also provided at its top end with a small bevelled guard plate, which protects the wood of the upper sash. The rocking lever is caused to engage by means of its shape with a pivotted double-armed bracket secured to the top of the lower sash, and in openings formed in a metal plate secured to the inside face of the upper sash. This plate has two or more of such openings formed in it, one above the other, at any desired distance apart. The whole is such that the upper sash cannot be moved unless the locking lever is out of gear with it, which can only be effected by raising the lower sash, which, to prevent its being raised from the outside, is provided with a suitable sill lock.

7,646.—WINDOW-SASHES: *F. J. J. Gibbons.*—This specification refers to an improvement in the locks of window-sashes. It consists more particularly in the combination with the lock proper of devices by which the key is locked in its lock until the sashes themselves are locked in the desired position by the protrusion of the lock-bolt, and also of an indicator by which it is rendered impossible for the lock to be left unlocked without the indicator showing it. The lock itself has a bolt, consisting of two parts, pivotted together at an angle. The operative nose of the bolt is pivotted to one part, and the end of the other part is screwed, its thread being engaged by a socket rotatable in the lock-case by an external webless key.

3,531.—METALLIC LATHING: *G. Hayes.*—This invention relates to lathing formed of sheet metal, and having at intervals throughout tongued apertures. It consists of a sheet metal lathing formed with corrugations throughout, and in the hollows of the corrugations (as they appear to its front or receiving face) are tongued apertures in line lengthwise; the corrugations, with the tongues turned over backward from the openings in a direction lengthwise the hollow, and towards the next opening in line. It further consists of a corrugated sheet of metal lathing having tongued apertures of special shape in the hollows of the corrugations appearing to its receiving face, as shown in the drawings accompanying the specification.

NEW APPLICATIONS FOR LETTERS PATENT.

May 3.—8,292, G. Graham, Artificial Stone Blocks.—8,327, H. Hunt, Fire-grates.—8,346, W. Hewitt and A. Suart, Brickmaking Machinery.—8,352, C. Borgner, Construction of Bricks.—8,381, C. Behn, Ventilation of House-Drains.—8,384, H. Hunt, Mantelpieces for Fireplaces.

May 4.—8,403, S Johnson, Attaching Door-knobs to Spindles.—8,460, W. Hewitt and A. Suart, Compounds for Paving or Covering Roads, Paths, or Floors, and for Manufacture of Paving-bricks or Blocks. — 8,472, C. Hawkes, Covering for Walls, &c.—8,477, X. Charles, Kiln or Drying Apparatus.—8,481, H. Berthold, Self-closing Door-hinge.

May 6.—8,580, T. Carlaw, Window-fittings.—8,583, T. Fawcett, Making and Pressing Bricks, and in moulds therefor, and in Clay-mixing or Grinding pans employed therein.

May 7.—8,706, S. Moore, Electrical Fittings, such as ceiling roses and cut outs.—8,714, A. Boult, Pipe Connexions.

PROVISIONAL SPECIFICATIONS ACCEPTED.

4,448, T. Jackson, Grates and Fireplaces.—5,989, A. Taylor. Dessing Stone.—6,067, D. France, Firegrates.—6,136, E. Wild and J. Kent, "In or Out" Indicator for Entrance Halls, &c.—6,200, J. Merrill, Alternating Valve Mechanism for Flushing.—6 408, W. Waghorn, Chimney-cowls.—6,606, H. Sutcliffe, Domestic Fireplaces.—6,663, H. Eggert, Hot-air Jet for Stoves.—6,716, S. Hellyer, Covers or Means for Closing Man-holes of Drains or Sewer-connexions and the like.—6,866, R. Zawischka, Planes. — 6,920, A. Johnson, Window-Fastener.—7,034, F. Willis and R. Astley, Fixing Fireproof Floors.—7,486, J. Robertson, Roofs, Floors, and similar Structures.—7,522, G. Ballard, Edging Tile or Brick.—7,660, F. Carter, Tiles.—7,683, R. Mushatt, Ventilators and Chimney-cowls.

COMPLETE SPECIFICATIONS ACCEPTED.

(*Open to Opposition for Two Months.*)

10,177. T. Starkey & Son, Door Springs.—11,101, M. Syer, Syphon Water Waste Preventer.—1,415, F. Edwards, Concrete and Iron Beams or Beams composed of similar Materials.—5,353, E. Stoefler and F. Alexandre, Smoothing Iron with Removable Handles.—6,091, H. Newton, Ventilation of Sewers.—6,654, O. Westblad, Roofing Tiles.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

MAY 9.—By *Schofield & Evans*: 1 to 7, Francis-pl., Westminster, u.t. 3 yrs., 140*l.*; 17 to 25, Coburg-row, u.t. 5½ yrs., g.r. 21*l.*, 220*l.*; 9 to 14, Alma-ter., Wandsworth, u.t. 35 yrs., g.r. 20*l.*, and l.g.r. of 13*l.*, same term, 945*l.*; "The Woodman" public-house, f., and the residence, "Elm Lodge," Wimbledon, 1,500*l.*

MAY 10.—By *Ellis & Son*: F.g r. of 39*l.* 18s. 6d., South Lambeth-rd., Vauxhall, with reversion in 20 yrs., 1,880*l.* —By *W. Simmonds*: 1, Farnell-mews, Kensington, u.t. 81 yrs., g.r. 8*l.*, r. 50*l.*, 640*l.*—By *F. J. Bisley*: 7 and 9, Rudford-rd., Rotherhithe, u.t. 83 yrs., g.r. 9*l.*, r. 46*l.* 16s., 180*l.*; 1 to 7 odd, Westlake-rd., u.t. 64 yrs., g.r. 3*l.*, r. 104*l.*, 830*l.*; 128, 136, 138, and 140, Rotherhithe New-rd., u.t. 61 yrs., g.r. 13*l.*, 1,290*l.*; 130 and 132, Rotherhithe New-rd., u.t. 61 yrs., g.r. 12*l.*; and a l.g.r. of 4*l.*, same term, 590*l.*; 118, 120, and 122, Creek-rd., Deptford, f., r. 78*l.*, 725*l.*; 22, James-st., f., r. 26*l.*, 175*l.*; 69 and 96, Drummond-rd., Bermondsey, u.t. 52 yrs., g.r. 7*l.* 3s., 705*l.*—By *Rogers, Chapman, & Thomas*: "The Hermitage," School House-lane, Wimbledon; 1 to 7 and 11 to 14, West-pl.; and Timber-yd., f., 2,200*l.*; the freehold residence "Clairville," 1,080*l.*; 33 to 36, West-pl., f., 1,150*l.*; 3, Torrington-pl., Gordon-sq., u.t. 31 yrs., g.r. 10*l.*, 1,140*l.*—By *E. & H. Lumley*: Three plots of land, 1a. 3r. 33p., f., West-hill, Putney, 3,670*l.*; "The Orphanage," and a plot of land, f., 950*l.*; a plot of land, 0a. 2r. 12p., f., 630*l.*—By *Thurgood & Martin*: F.g.r. of 204*l.*, High-st, Croydon, with reversion in 86 yrs., 4,495*l.*; Freehold rent-charge of 5*l.* a year, 135*l.*; the f. residence, "Ottinge," Whytecliffe-rd., Purley, r. 65*l.*, 1,860*l.*; "Stamford House," London-rd., Croydon, f., r. 50*l.*, 605*l.*; "Field View," f., r. 40*l.*, 455*l.*

MAY 11.—By *W. S. Morris*: 1A, 1 to 23 odd, Richard's Cottages, Acton, f., 1,500*l.*—By *Barker & Cathie*: No. 133, High Holborn, u.t. 33 yrs., g.r. 50*l.*, r. 180*l.*, 1,490*l.*—By *Harman Bros.*: 1, St. John's-lane, Smithfield, f., r. 50*l.*, 900*l.*; 392, Uxbridge-rd., Shepherd's Bush, u.t. 82 yrs., g.r. 20*l.*, r. 75*l.*, 640*l.*; 404 and 406, Uxbridge-rd., u.t. 82 yrs., g.r. 45*l.*, r. 179*l.*, 1,375*l.*; 2, London-rd., Hackney, u.t. 67 yrs., g.r. 6*l.*, 300*l.*—By *Glover & Harrison*: 1 and 2, Lawn Cottages, Tooting, f., 675*l.*—By *A. & R. Beal*: 99 to 113 odd, Dawes-rd., Walham Green, f., r. 50*l.*, 5,350*l.*—By *Rushworth & Stevens*: 5, 6, and 7, Bond-st., Pentonville, u.t. 27 yrs., g.r. 15*l.*, r. 144*l.*, 910*l.*; 119, Pembroke-st., Islington, u.t. 57 yrs., g.r. 6*l.* 10s., r. 34*l.* 4s., 275*l.*; 121, Pembroke-st., u.t. 57 yrs., g.r. 6*l.* 10s., r. 34*l.* 4s., 250*l.*; 2, Church-lane, Hornsey, u.t. 91 yrs., g r. 9*l.*, r. 52*l.* 10s., 490*l.*; 7, Ashmount-rd., u.t. 88 yrs., g.r. 6*l.* 10s., r. 36*l.*, 385*l.*—By *Battam & Co.*: 28, Brandenburgh-rd, Chiswick, u.t. 71 yrs., g.r. 7*l.* 7s., 250*l.*; 41, Kensington-pk.-gardens, Notting-hill, u.t. 58 yrs., g.r. 21*l.*, 1,400*l.*; 13, Poplar-grove, u.t. 84 yrs., g.r. 6*l.*, r. 47*l.* 10s., 460*l.*

MAY 12.—By *Drew & Son*: "Mount Ararat House," Richmond, and 2a. 3r. 26p., f., 9,000*l.*—By *W. W. Jenkinson*: 10, Queen-st. East, Greenwich, f., r. 10*l.* 8s., 65*l.*; a plot of freehold land, East-st., 40*l.*—By *T. G. Wharton*: L.g.r. of 42*l.*, Spencer-st., Canonbury, u t. 26 yrs., and reversion for one year, 570*l.*; i.g.r. of 180*l.*, Harold-rd., Upton-pk., u.t. 67 yrs., g r. 15*l.*, 2,875*l.*—By *S. Single*: 27 and 29, Princes-rd., Notting-hill, u.t. 48 yrs., g r. 16*l.*, 460*l.*—By *Hards & Bradly*: 86, Herbert-rd., Plumstead, and plot of land, f., 1,000*l.*; 7 to 13 odd, Oglander-st., Peckham, u.t. 83 yrs., g.r. 20*l.*, r. 104*l.*, 250*l.*—By *Charles & Tubbs*: 1 to 8, Hutley Cottages, Finchley, u.t. 91 yrs., g r. 22*l.*, 750*l.*—By *Farebrother, Ellis, & Co.*: No. 45, Lincoln's-inn-fields, f., area 6,100 ft., 15,750*l.*—By *Newbon & Co.*: F.g r. of 40*l.*, Cornwall-rd., Southwark, with reversion in 29 yrs., 1,025*l.*; f.g.r. of 22*l.* 10s., with ditto in 29 yrs., 550*l.*; an improved rental of 40*l.*, King's-rd., Camden Town, u.t. 58 yrs., 700*l.*; 51, College-st., Barnsbury, u.t. 24 yrs., g r. 6*l.* 10s., r. 40*l.*, 250*l.*; 27, Upper Ogle-st., Great Portland-st., u.t. 35 yrs., g.r. 7*l.*, r. 60*l.*, 450*l.*—By *C. C. & T. Moore*: 45, Digby-rd., Homerton; and 25, Berger-rd., f., 620*l.*; 86 to 94 (even), and 101, Chapel-st., Stratford, f., 1,010*l.*; 2 to 18 (even), Queen-st., Stratford, f., 1,200*l.*; 122 and 124, Tower Hamlets-rd., Forest-gate, f., 360*l.*; 43, Addison-rd., Kensington, u.t. 29 yrs., g.r. 8*l.*, 820*l.*—By *Stimson & Sons*: 30 to 38 (even), West-st., Mile-end, and 2, 4, and 6, Ann-st., f.. 1,060*l.*; Nos. 126 and 128, New Cross-rd., u.t. 68 yrs., g.r. 12*l.*, 685*l.*; 196, Stanstead-rd., Forest-hill, u.t. 91 yrs., g.r. 8*l.*, r. 38*l.*, 270*l.*; No. 2, "Acre House," Brixton-hill, u.t. 11 yrs., g.r. 10*l.*, 590*l.*; 8, The Ter., Peckham, u.t. 370 yrs., no g.r. 1,700*l.*; 14, 16, and 18, Basing-rd., u.t. 81 yrs., g.r. 11*l.* 5s., 360*l.*; 290 and 292, Commercial-rd., Old Kent-rd., u.t. 17 yrs., g.r. 10*l.*, 300*l.*—By *Messrs. Chadwick*: F.g.r. of 21*l.* 10s., Grove-pk., Camberwell, with reversion in 63 yrs., 610*l.*; f.g.r. of 15*l.* 12s., Grove-pk., with reversion in 67 yrs., 420*l.*; f.g.r. of 23*l.*, ditto in 67 yrs., 710*l.*; f.g.r. of 30*l.* 16s., ditto in 70 yrs, 870*l.*; f.g.r. of 12*l.* 7s. 6d., ditto in 80 yrs., 355*l.*; f.g.r. of 31*l.*, Chadwick-rd., Peckham, with reversion in 64 yrs., 860*l.*; f.g.r. of 60*l.*, ditto in 67 yrs., 1,695*l.*; f.g.r. of 80*l.*, ditto in 77 yrs., 2,371*l.*—By *Wilkinson, Son, & Welch* (at Brighton): The freehold residence "Oaklands," Hayward's-heath, 2,800*l.*; three freehold plots of land, 4a. 0r. 29p., 1,390*l.*; "Boltro Farm," and 1a. 1r. 29p., f., 615*l.*

MAY 13.—By *Reynolds & Eason*: 1 and 3, Devas-st., Bromley-by-Bow, f., 300*l.*; 146, Bolevn-rd., Kingsland, and "Arundel Arms," profit rental 32*l.* 10s., u.t. 57 yrs., 275*l.*; 183 and 185, Broke-rd., Clapton, u.t. 81 yrs., g.r. 12*l.*, r. 56*l.*, 500*l.*; 28, St. Peter's-rd., Mile-end, u.t 38 yrs., g.r. 3*l.* 8s., 320*l.*; 7, Balcombe-st., Dorset-sq., u.t. 17 yrs., no g.r., r. 100*l.*. 840*l.*—By *Driver & Perfect*: 93 and 99, Junction-rd., Holloway, u.t. 59 yrs., g.r. 20*l.*, r. 160*l.*, 1,750*l.*; 103, Junction-rd., u.t. 59 yrs., g.r. 10*l.*, r. 70*l.*, 730*l.*; 17, St. John's-pk., u.t. 59 yrs., g.r. 2*l.*, 750*l.*; a plot of freehold land, Brook-rd., r. 10*l.*, 175*l.*—By *Herring, Son, & Daw*: F stabling, &c., Dorset-st., Spitalfields, area 1,800 ft., 975*l.*; 343, Brixton-rd., Brixton, u.t. 59 yrs., g.r. 15*l.* 10s., 810*l.*; Freehold ground rents of 3*l.* 15s., Brighton-ter., with reversion in 17½ yrs., 2,300*l.*; F.g.r. of 81*l.* 10s., with reversion in 17½ yrs., 2,935*l.*—By *Norton, Trist, & Gilbert*: 34 and 36, Beckenham-rd., Penge, u.t. 70 yrs., g.r. 25*l.*, 675*l.*; 3, Avington-grove, u.t. 70 yrs., g.r. 8*l.*, 255*l.*; 1 to 14, Brunswick-pl, Anerley-rd., u.t. 72 yrs., g.r., 60*l.*, 1,730*l.*

[*Contractions used in these lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G.	ton	9/0/0 — 0/0/0
Teak, E.I...	load	9/10/0 — 15/0/0
Sequoia, U.S.ft.cu.		2/3 — 3/0
Ash, Canada load		2/10/0 — 4/0/0
Birch, do.		3/5/0 — 4/10/0
Elm, do.		3/10/0 — 4/15/0
Fir, Dantsic, &c.		1/10/0 — 3/10/0
Oak, do.		3/0/0 — 5/5/0
Canada.....		5/10/0 — 7/0/0
Pine, Canada red		2/10/0 — 3/10/0
Do, yellow		2/10/0 — 5/0/0
Lath, D'ntsic, fath		5/0/0 — 6/0/0
St. Petersburg		5/0/0 — 7/0/0
Deals, Finland, 2nd & 1st std 100		8/0/0 — 9/10/0
Do, 4th & 3rd..		7/0/0 — 8/0/0
Do. Riga		7/0/0 — 8/0/0
St. Petersburg, 1st yellow ..		11/0/0 — 14/10/0
Do. 2nd yellow		8/0/0 — 10/0/0
Do. white		7/10/0 — 10/10/0
Swedish		7/10/0 — 15/10/0
White Sea		8/0/0 — 17/10/0
Canada, Pine 1st		20/0/0 — 26/0/0
Do. do. 2nd....		14/10/0 — 16/0/0
Do. do. 3rd, &c.		8/10/0 — 10/5/0
Do. Spruce. 1st		8/10/0 — 11/0/0
Do. do. 3rd & 2nd.....		6/15/6 — 8/0/0
New Brunswick		7/0/0 — 7/10/0
Battens, all kinds		3/10/0 — 15/10/0
Flooring Boards, sq., 1 in. prep. 1st		0/8/0 — 0/14/0
Do. 2nd.....		0/7/0 — 0/11/0
Other qualities		0/3 6 — 0/7/6
Cedar, Cuba ..ft.		/3½ — /4½
Honduras, &c.		/3½ — /4
Mahogany, Cuba.		/4½ — /6½
St. Domingo, cargo av		/4½ — 2/0
Mexican do. do		/4 — /5
Tobasco do. do		/5½ — /7
Honduras do..		/5½ — /6½
Box, Turkey ton		4/0/0 — 13/0/0
Rose, Rio.....		10/0/0 — 20/0/0
Bahia		9/0/0 — 18/0/0
Satin, St. Domingo ....ft.		0/0 8 — 0/1/3

TIMBER (*continued*).		
Satin, Porto Rico	0/0/8	0/1/6
Walnut, Italian..	0/0/3½	0/0/7
METALS.		
IRON—Pig, in Scotland .....ton	2/0/10	2/0/11½
Bar, Welsh, in London.....	5/17/6	6/0/0
Do. do. at works in Wales	5/7/6	5/10/0
Do. Staffordshire, in London	6/5/0	6/15/0
COPPER—British, cake and ingot	48/0/0	49/10/0
Best selected ..	49/10/0	50/10/0
Sheets, strong..	58/0/0	58/10/0
Chili, bars	46/7/6	46/15/0
YELLOW METAL lb.	0/0/5	0/0/5½
LEAD—Pig, Spanish....ton	10/10/0	10/11/3
English, com. brands	10/12/6	10/15/0
Sheet, English, 3 lbs. per sq. ft. and upwards ..	12/0/0	0/0/0
Pipe	12/10/0	0/0/0
ZINC—English sheet .....ton	25/10/0	0/0/0
Vieille Montagne.....	26/5/0	0/0/0
TIN—Straits	95/7/6	95/17/6
Australian	95/7/6	95/17/6
English Ingots	97/10/0	98 0/0
OILS.		
Linseed .....ton	18/10/0	18/15 0
Cocoanut, Cochin	24/0/0	0/0/0
Do. Ceylon	21/17/6	22 0 0
Palm, Lagos	22/5/0	22/10/0
Rapeseed, English pale	25/5/0	0 0/0
Do. brown	23/15/0	0/0/0
Cottonseed ref...	19/0/0	0/0/0
Oleine	21/10/0	22/10/0
Lubricating, U.S.	4/0/0	5/0/0
Do. refined	6/0/0	12 11/0
TAR—Stockholm barrel	0/19/0	1/0/0
Archangel	0/12/6	0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 12 *noon on Thursdays.*]

ABINGDON.—For the repairs, refitting, and redecoration of the Manor-house, Shippon, on the Duchy of Cornwall Estate. Mr. J. G. T. West, architect, Abingdon:—
Hutchings & Osborne ... £1,180 | Thatcher & Stroud..... £1,020

ACTON.—Accepted for additions to 1, Goldsmith's-gardens, for Mr. A. T. Pocock. Mr. A. M. Christy, architect, 30, Great St. Helens, E.C.:—
Geo. Hooper, Acton..... £486 0 0

APPLEFORD (Berks).—For alterations and repairs to "The Carpenter's Arms," Appleford, for Messrs. Townsend. Mr. J. G. T. West, architect, Abingdon:—
Cox & Holloway ..... £398 16 | T. Barrett £319 0

ASHTON-UNDER-LYNE.—Accepted for building five shops in St. Michael's-square, for Mr. John Fletcher, Springfield, Ashton-under-Lyne. Messrs. T. George & Son, architects, Old-square, Ashton-under-Lyne. Quantities by the architect:—
Excavator and Bricklayer.—J. Gibson & Son, Dukinfield £650 0 0
Stonemason.—Thomas Crackston, Ashton-under-Lyne .. 634 0 0
Carpenter and Joiner.—Elijah Holmes, Dukinfield 624 0 0
Plasterer and Slater.—Robert Newton, Symondly, Glossop 155 0 0
Plumber and Glazier.—G. H. Coop, Ashton-under-Lyne .. 195 0 0
Painter.—P. M. Mellor, Ashton-under-Lyne..... 30 0 0

BEDFORD.—For building new shops on the forecourts of Nos. 50, 52, 54, and 56, Bromham-road, Bedford, for Messrs. Smith & Barnes. Mr. Wm. Barnard Davis, architect:—

W. Haynes	£804	T. Dawson.....	£693
G. Harrison.....	773	T. H. Coleman*	685
G. E. Fathers	733	* Accepted.	

BOURNEMOUTH.—For erecting the new "Granville" Temperance Hotel. Messrs. Lawson & Donkin, architects. Quantities supplied:—

Barrow & Entwistle	£8,750	Jones & Son	£8,125
Fabey & Son	8,717	McWilliam & Son	7,790
Jenkins & Son	8,497	Curtis, W. H. C.	7,770
George & Harding	8,370	J. W. Lucas	7,694
Reed, Blight, & Co.	8,250	Hayward, Penton & Hayward	7,497
H. J. Sanders	8,200	T. H. Kingerlee	7,467
F. Hoare & Son	8,187		
Chinchen & Co.	8,147		

BROMLEY (Kent).—For the erection of a chapel and gatehouse and laying-out the cemetery, Burnt Ash-lane, for the Plaistow Burial Board. Messrs. Wadmore, Wadmore, & Mallett, architects, 35, Great Saint Helens, E.C. Quantities supplied by Messrs. C. Stanger & Son:—

	Kentish Stone Random.	Ditto All Coursed.	Red Brick Facing.
R. A. Lowe.....	£3 084 0 0	£3,329 0 0	£2,983 0 0
Rowe Bros.	2,860 0 0	3,080 0 0	3,000 0 0
Dove Bros.	2,775 0 0	2 925 0 0	2 865 0 0
Wm. Downs	2,700 0 0	2,720 0 0	2,530 0 0
J. Otway	2,636 0 0	2 681 0 0	2,451 0 0
F. P. Duthoit.....	2,512 0 0	2,766 0 0	2,355 0 0
Wm. Grubb.....	2,509 0 0	2 534 0 0	2,409 0 0
Thos. Crossley	2,458 0 0	2,540 0 0	2,310 0 0
R. Avard	2,346 0 0	2,455 0 0	2,289 0 0
G. J. Jones	2,337 16 8	2,406 10 9½	2,269 5 2
T. D. Graty, Bromley, Kent*	2,299 0 0	2,429 0 0	2,149 0 0
	* Accepted.		

Carriage Drives and Paths.

Mayo & Co.	£540 0 0
J. Jackson	500 0 0
Peil	497 0 0
T. Lansbury, Bromley, Kent (accepted).....	463 0 0

Oak Fencing.

	For 86 Rods.	Per Rod for Extra.
Ellis Bros.....	£268 15 0	£3 2 6
Murray Marshall	253 14 0	2 19 0
Beadle Bros.....	249 8 0	2 18 0
Taylor & Brooker	243 0 0	2 16 6
Roland Bros.....	211 15 6	2 9 3
Avard	210 0 0	2 8 10
Barrett, Bromley*.....	207 13 1	2 8 3½
	* Accepted.	

BRENTFORD.—For the construction of a new road near Clifden House, for the Brentford Local Board. Mr. J. H. Strachan, Surveyor:—

Mowlem & Co.....	£329 0 0	W. Parker.....	£246 0 0
Nowell & Robson	321 0 0	John Ball, Chiswick*	233 1 2
Holte & Co.	250 0 0	* Accepted.	
[Surveyor's estimate, £260.]			

BRENTFORD.—For the supply and delivery of 1,500 yards of blue Guernsey granite, for the Brentford Local Board. Mr. J. H. Strachan, Surveyor:—

	Per yd. s. d.		Per yd. s. d.
Femmings	15 7	Mowlem & Co., Westminster*	14 9
Nowell & Robson	15 6	* Accepted.	
Lemaitre	14 11		

BRENTFORD.—For making-up the undermentioned roads, for the Brentford Local Board. Mr. J. H. Strachan, Surveyor:—

	Glenhurst-road.	Avenue-road.	Mercury-road.
Mowlem & Co.	£754 0 0	£435 0 0	£205 0 0
Nowell & Robson	731 0 0	442 0 0	199 0 0
Holte & Co.....	680 6 9	399 5 10	168 0 0
W. Parker, Brentford..	600 0 0	*355 0 0	151 0 0
John Ball, Chiswick ..	*348 6 2	358 11 2	*154 12 4
Surveyor's estimates ..	590 0 0	382 0 0	150 0 0
	* Accepted.		

BRENTFORD.—Accepted for the supply and delivery of 1,400 yards of Kentish flints, for the Brentford Local Board. Mr. J. H. Strachan, Surveyor:—
G. Pearce, Brentford..... 5s. 4d. per yard.

BRISTOL.—For new warehouse and offices, for Messrs. Lindrea & Co. Mr. Herbert J. Jones, architect, 12, Bridge-street, Bristol:—

E. Gay.....	£3,286	W. Galbraith	£2,970
J. E. Davis.....	3,162	J. Perrott	2,920
W. Church.....	3,043	W. Cowlin & Son	2,878
Stephens, Bastow, & Co. ..	3,030	E. Walters	2,832
Eastbrook & Sons.....	2,998	R. Wilkins & Sons..... ..	2,749
G. Humphreys.....	2,985	G. H. Wilkins (accepted)..	2,678
	[All of Bristol.]		

CANNING TOWN.—For paving Victoria Dock-road, Canning Town. Mr. Lewis Angell, M.Inst. C.E., Borough Engineer:—

W. Hirst	£8,365 2 6	Mowlem & Co.....	£7,406 0 0
Nowell & Robson....	7,902 2 6	W. Griffiths	6,955 11 3
Turner, Son, & Evanson	7,654 15 0	E. Parry.....	6,138 10 0
		J. Biggs	6,059 17 1
B. Cooke & Co.....	7,590 0 0	Woodham, Fry, & Fry, Greenwich*..	5,606 7 6
G. G. Rutty	7,578 0 0		
J. Jackson.....	7,477 0 0	* Accepted.	

CANTERBURY.—For sewage farm extension works and new storm sewers, for the Corporation of Canterbury. Mr. Frank Baker, C.E., engineer, Vernon House, Canterbury:—

Contract No. 1.—Supply of Stoneware Pipes, &c.
Pipes.

	24-in.	18-in.	15-in.	12-in.	9-in.	6-in.	4-in.
G. Jennings*....	6 0	3 0	2 3	1 1½	0 8½	0 4½	0 3½
T. Wragge & Sons	5 3	2 7½	1 8½	1 0	0 8	0 4	0 3
Cliffe & Son.....	5 0	2 9	1 9½	1 0½	0 7½	0 4½	0 3½
Stiff & Son	6 8	3 0	2 3	1 1½	0 8½	0 4½	0 3½
Doulton & Son ..	7 0	3 0	2 3	1 1½	0 8½	0 4½	0 3½

Gully Traps.

	18-in.	15-in.	12-in.	9-in.	6-in.
G. Jennings*	20 0	15 0	11 3	7 6	5 6
T. Wragge & Son ..	20 0	15 0	9 8	5 6	3 5
Cliffe & Son	21 0	..	..	..	..
Stiff & Son	17 6	14 0	9 0	6 0	2 9
Doulton & Co.....	20 0	16 0	10 6	6 0	2 9

Contract No. 2.—Wrought Iron Fencing, Gates and Fixing.

	Fencing. Per yard.	Field Gates.
Drury & Biggleston	4 3	£6 0
Bayliss, Jones, & Bayliss.....	3 1	7 10
Hill & Smith*	2 8½	4 5

Contract No. 3.—24-in. Cast-iron Pipes, &c.

	Pipes. Per ton.	Special Castings. Per cwt.
Staveley Iron Company*	£4 16 6	9 0
Stanton Ironworks	4 12 3	8 10
Newton Chambers	5 0 0	11 0
Clay Cross Company	4 15 0	9 0
Butterley.....	6 1 0	10 10

Contract No. 5.—Sewage Tanks, Storm Outfall, and other Works.

Cooke & Co.	£2,960 9	Johnson & Co., London*	£2,819 0
W. J. Adcock.....	2,854 0		
	* Accepted Tenders.		

GRAFION (near Hereford).—For building villa residence at Grafton, near Hereford. Mr. W. W. Robinson, architect, Hereford:—
Bowers & Co., Hereford £425 0 0

GUILDFORD.—For the erection of St. Saviour's permanent Church-room and temporary church. Mr. Miles, architect, Bournemouth. No quantities:—

May	£1,445	Downs.....	£1,325
Lunn	1,395	Mitchell Bros.	1,298
Higlett & Hammond.....	1,387	Robert Smith	1,236
Smith & Sons	1,374	Thos. Swayne	1,218
Stanley Ellis	1,372	[All of Guildford.]	

HALESWORTH.—For the enlargement of and improvements to the Rifle Hall. Messrs. Bottle & Olley, architects, Great Yarmouth:—
Hindes & Son..... £734 0 0
S. Howard & Sons, Halesworth (accepted) 661 10 0

HEREFORD.—For erecting hop-kiln and stores, Burghill, Hereford. Mr. W. W. Robinson, architect, Hereford:—

Andrews & Rudge.....	£330 0	Andrews & Son	£246 15
Davies	265 0	Powis, Wellington, near Hereford*	225
Lloyd.....	247 0		
	* Accepted.		

HEREFORD.—For the erection of four semi-detached villa residences, Hereford. Mr. W. W. Robinson, architect, Hereford:—
Reuben Taylor, Hereford £1,380 0 0

HEREFORD.—For additions to Beechwood, Hereford. Mr. W W. Robinson, architect Hereford:—
Beavau & Hodges, Hereford..... £543 0 0

HOLYHEAD.—For the erection of two cottages at Blackbridge, Holyhead, for Miss Adeane. Messrs. Arthur Baker & Harold Hughes, architects, Bangor:—
Owen Morris, Carnarvon (accepted)..... £719 0 0

HORNSEY.—For repairs and painting at the "Priory," Hornsey, for Mr. Williams. Mr. E. J. Paine, architect, 11, Great James-street, W.C.:—

Stimpson & Co.	£645	E. Houghton & Son	£568
Harris & Wardrop.....	613		

KETTERING.—For erecting Broughton School, near Kettering, Northamptonshire. Messrs. Hart & Dawson, architects, 21, King-street, Wakefield. Quantities by the architects:—

C. Sharman	£1,130 0 0	Woodford & Son.....	£983 6 4
A. Barlow	1,114 1 9	W. Clow.....	885 10 0
J. Grant.....	1,090 4 3	Abraham Mussell. Thrapstone*.....	822 13 0
S. Hipwell.....	1,046 10 0		
A. Claypole	1,020 9 7	Thos. Whitney (withdrawn)	778 10 0
G. Henson.....	985 0 0		
	* Accepted.		

LEIGHLINBRIDGE (co. Carlow).—For new chancel, chapels and sacristy, to the Parish church of Leighlinbridge, near Bagenalstown, co. Carlow. Mr. W. G. Doolin, M.A., architect, 20, Ely-place, Dublin. Quantities by Mr. D. W. Morris:—
Messrs. Morrison Bros., Bagenalstown* £1,475 0 0
* Modified amount accepted.

LONDON.—For rebuilding No. 142, Oxford-street, W. Mr. A. E. Hughes, architect. Quantities by Mr. Henry Lovegrove, 23, Budge-row, E.C.:—

		Old Material.
Ha'l, Beddall, & Co.....	£6,120	..... —
Williams & Son	5,977	..... £10
Falkner.....	5,883	..... —
Patrick & Son.....	5,340	 20
H. & E Lee.....	4,993	 20
Holloway Bros.	4,853	..... —
Woodward & Co.	4,768	 28

LONDON.—Accepted for the erection of bakery, Field-place, Clerkenwell. Mr. J. Henry Richardson, architect, Shepherd's-bush:—
G. Veale & Co £450 0 0

LONDON.—For repainting a portion of Leadenhall Market, for the Corporation of the City of London. Mr. Andrew Murray, City Surveyor. Quantities by Mr. H. Lovegrove:—

W. J. Lister & Co.	£893 0 0	Philps & Binker	£846 0 0
Lidstone & Co.	890 0 0	Heeps	820 0 0
Holliday & Greenwood	877 0 0	Kirkaldy & Son	798 0 0
Harrison & Spooner ..	847 0 0	Cobbs Wilmott*	779 3 4

* Accepted.

LONDON.—Accepted for the erection of stabling at Chiswick, for the West Met opolitan Tramway Co. Mr. J. Henry Richardson, architect, Shepherd's-bush. Quantities by Mr. Henry Lovegrove, 26, Budge row, E.C.:—

Chamberlen Bros. £584 0 0

LONDON.—Accepted for decorative works at "The Waterloo" Tavern, Haymarket (second contract), for Mr. F. A. Rhodes. Messrs. Dickinson & Paterson, architects, 5, John-street, Adelphi:—

Edwards & Medway £111 13 0

LONDON.—For ornamental and wire fencing at Battersea-park, for the London County Council. Mr. Thomas Blashill, Architect:—

L. Faulkner & Sons ..	£654 0 0	Hill & Smith	£591 6 4
The Iron Wire, Wire Rope, and Fencing Co.	616 12 9	R. Holliday	527 0 0
		Johnson, Bros., & Co...	515 0 0
		M. McVey	497 19 9

LONDON.—To reinstatements, reparations with fire-proof floor, &c., after fire, the upper portion of stable buildings in the rear of No. 2, Upper Tollington-park, for Mr. C. King. Mr. Geo. Carter, architect, 513, Holloway-road:—

Wood, 62, Hampden-road, N. (accepted) £625 0 0

LONDON.—For proposed residences in the Green-lanes, Hornsey, N. Mr. Geo. Carter, surveyor, 513, Holloway-road:—

Messrs. Horne & Chaffey £3,300 0 0

LONDON.—For gas-fittings to be done at the "Victory" public house, Barlow-street, Locksfields, Walworth:—

Biggs & Co.	£250 0	Winn*	£209 0
Hodge & Co.	211 15		

* Accepted.

NANTWICH.—For the erection of hotel buildings and baths at "Shrewbridge Hall," for the Nantwich Brine Baths and Hotel Company, Limited. Messrs. Mackmurdo, Hornblower, & Walters, architects, London and Liverpool:—

Hotel (exclusive of works in Old Hall).

Holme & Green	£12,442	Hughes & Stirling	£11,490
Browne & Backhouse	12,385	J. Mathews	10,538
Wm. Tomkinson & Son..	12,072	Wm. Brown & Son*	10,216

* Accepted.

Baths.

Browne & Backhouse	£3,000	Hughes & Stirling	£2,690
Holme & Green	2,969	J. Mathews	2,495
Wm. Tomkinson & Son ..	2,943	Wm. Brown & Son*	2,353

* Accepted.

NORTH FINCHLEY.—For the erection of shop, dwelling-house, and stores at North Finchley. Mr. F. D. Thomson, architect, Woodside-park, North Finchley:—

Cooper	£2,487	Voller	£1,598
Brown & Swalland.....	1,669	Wheeler & Co.	1,535

STRATFORD.—For making-up Warton-road, Stratford. Mr. Lewis Angell, M.Inst. C.E., Borough Engineer:—

Cooke & Co.	£2,535	G. J. Anderson	£1,998
Nowell & Robson.....	2,430	W. Griffiths	1,990
G. G. Rutty	2,390	J. Jackson, Plaistow, E.*..	1,899

* Accepted.

WOLVERHAMPTON.—For the erection of a villa-residence and stabling, Avenue-road, Wolverhampton, for Mr. S. Larkinson. Mr. J. Lavender, architect:—

B. Guest	£1,382 7	G Cave	£1,175 0
H. Willcock	1,255 0	H. Gough (accepted) ..	1,160 0

[All of Wolverhampton.]

WOLVERHAMPTON.—For building board school for infants at Moseley Village, near Wolverhampton, for the Wednesfield School Board. Mr. Geo. H. Stanger, architect. Quantities by the architect:—

H. Dorse & Son	£1,433 0 0	C. E. Burton	£1,225 0 0
H. Lovatt	1,419 0 0	Thos. Tildesley	1,200 0 0
J. Moore & Son	1,380 6 1	Hy. Gough, Wolverhampton*	1,150 0 0
H. J Hunter	1,350 0 0		
H. Willcock.....	1,300 0 0		

* Accepted.

WORTHING.—For building a house at Worthing, for Dr. Gostling. Mr. Alfred H. Butler, architect, 16, Finsbury-circus, E.C. Quantities by Mr. Geo. Fleetwood, 15, Furnival's-inn, E.C.:—

R. C. Blaker	£2,411 0	W. Gladding	£2,331 0
E. A. Roome	2,383 0	McCormick & Sons	2,264 0
Chas. C. Cook.....	2,338 0	Geo. Baker, Worthing*	2,028 15

* Accepted.

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TO CORRESPONDENTS.

W. M.—A. S. (We will endeavour to give you the information if it is not too far back).—H. H. (We have not space to continue the correspondence).—"One who was there."—G. H. M. & Co. (too small).—R. M. B. (It is not necessary to go further into the matter; all our readers know the facts).—W. H. (We do not insert tenders without amounts).

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Addressed to No. 46, Catherine-street, W.C

Advertisements for the current week's issue must reach the Office before THREE o'clock p.m. on THURSDAY, but those intended for the front Page should be in by TWELVE noon on WEDNESDAY.

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1891.

1. CANTERBURY ..	Jan. 3.	7. SALISBURY	July 4.
2. LICHFIELD	Feb. 7.	8. BRISTOL	Aug. 1.
3. ST. ALBAN'S	Mar. 7.	9. NORWICH	Sept. 5.
4. PETERBOROUGH ..	April 4.	10. ROCHESTER	Oct. 3.
5. WELLS	May 2.	11. LINCOLN	Nov. 7.
6. EXETER	June 6.	12. GLOUCESTER	Dec. 5.

1892.

13. ST. PAUL'S	Jan. 2.		
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16. ELY	April 2.	22. ST. ASAPH .. }	
17. LLANDAFF	May 7.	23. WINCHESTER	Oct. 1.
18. OXFORD	June 4.	24. TRURO	Nov. 5.
19. SOUTHWELL	July 2.	25. ST. DAVID'S	Dec. 3.

[Further arrangements will be duly announced.]

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Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds, and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co. [ADVT.

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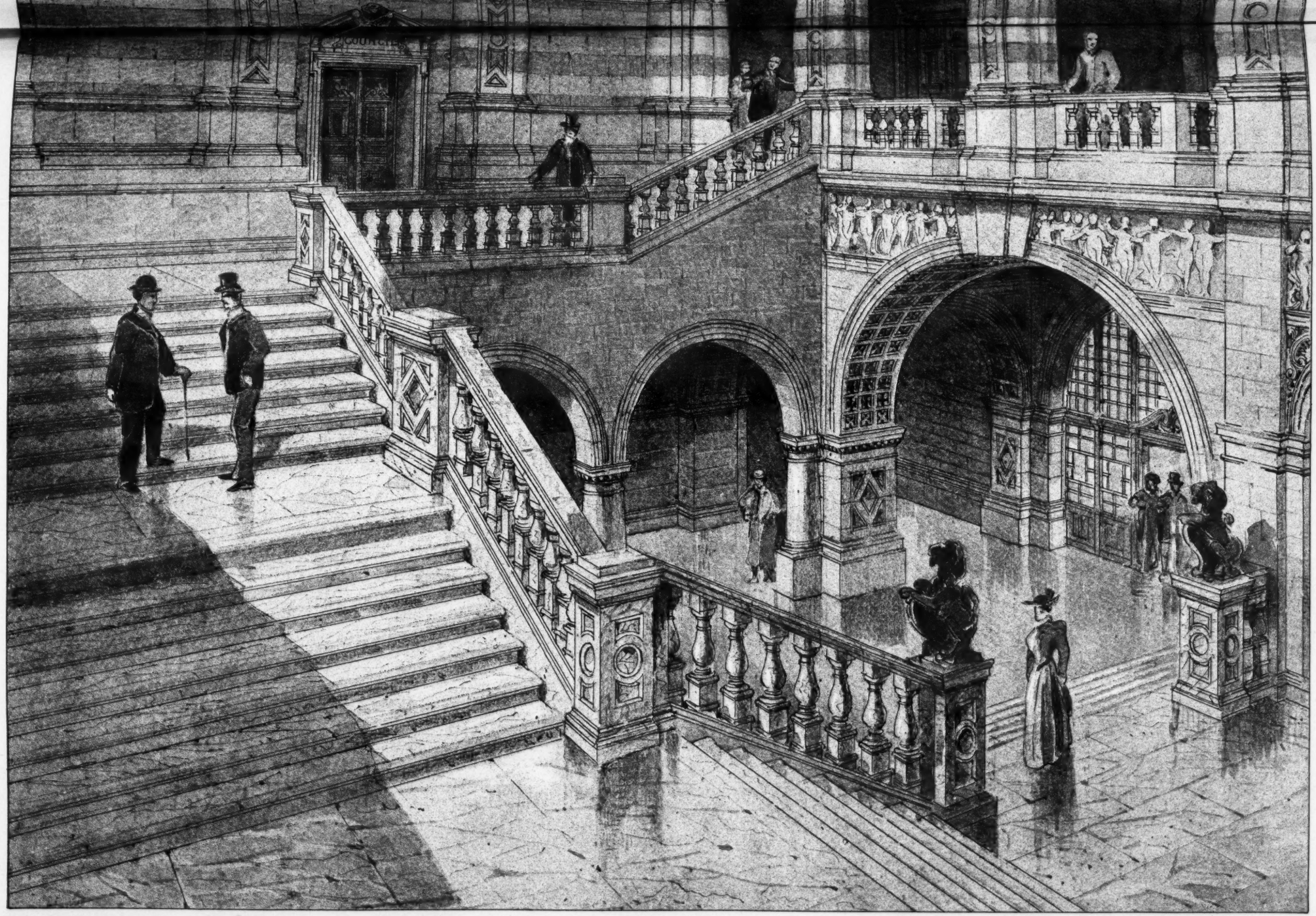

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SHEFFIELD MUNICIPAL BUILDINGS: GRAND STAIRCASE.—Mr. E. W. Mountford, F.R.I.B.A., Architect.

Royal Academy Exhibition, 1892.

MUNICIPAL BUILDINGS, SHEFFIELD: SURREY STRE FRO

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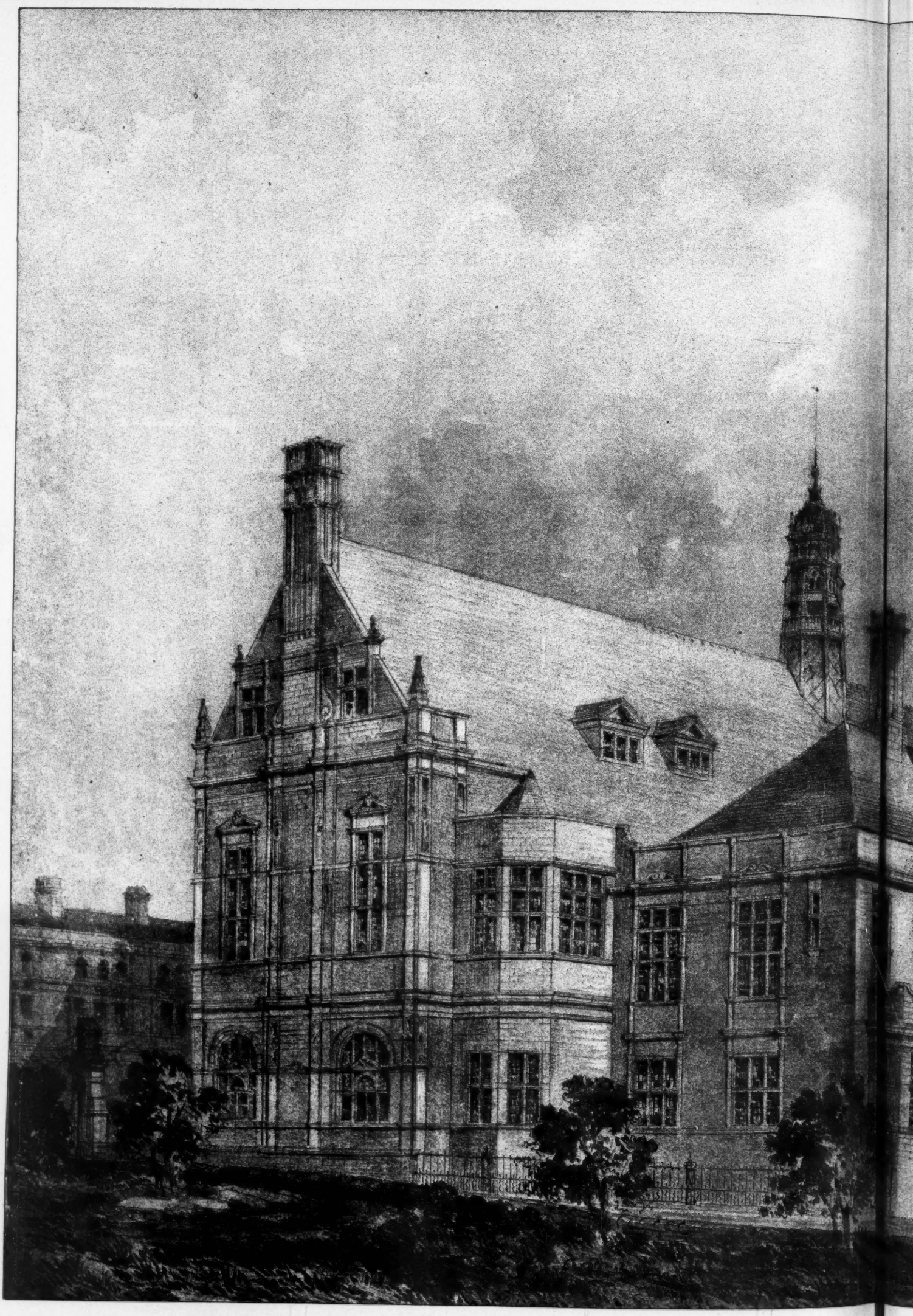

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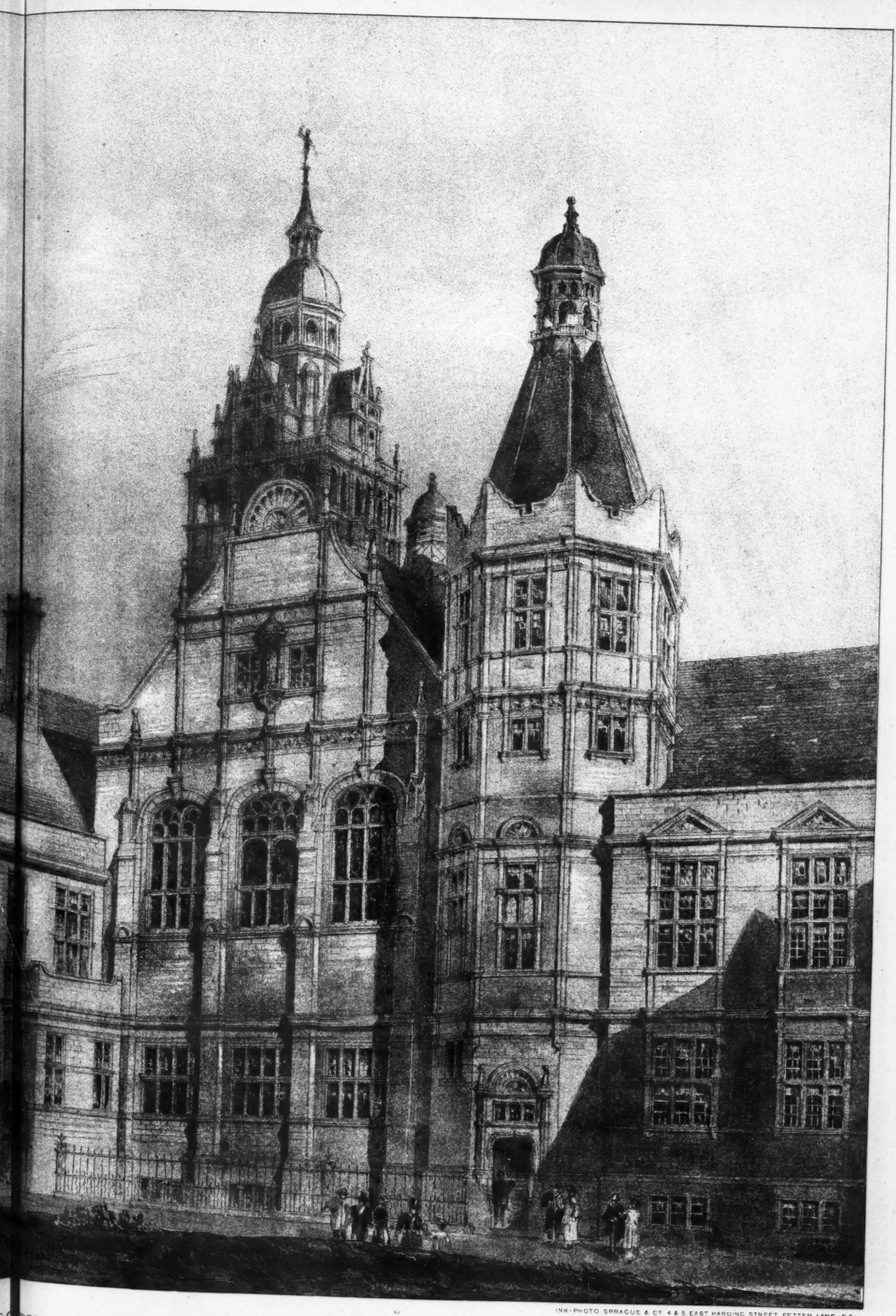
MUNICIPAL BUILDINGS, SHEFFIELD: VIEW TOWARDS C RCHY



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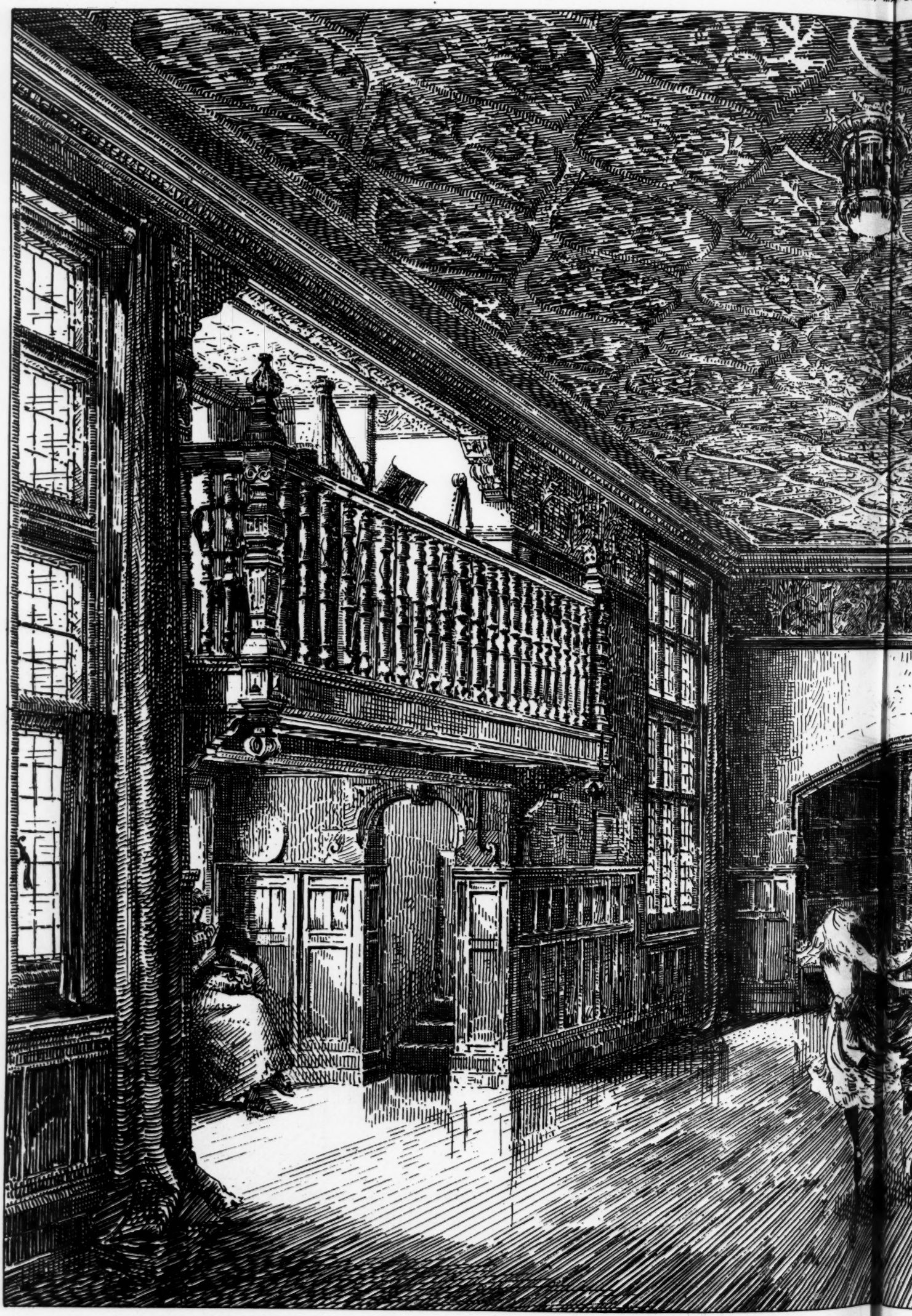

MUSIC ROOM: "HIGHLANDS," PUTNEY H.—

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